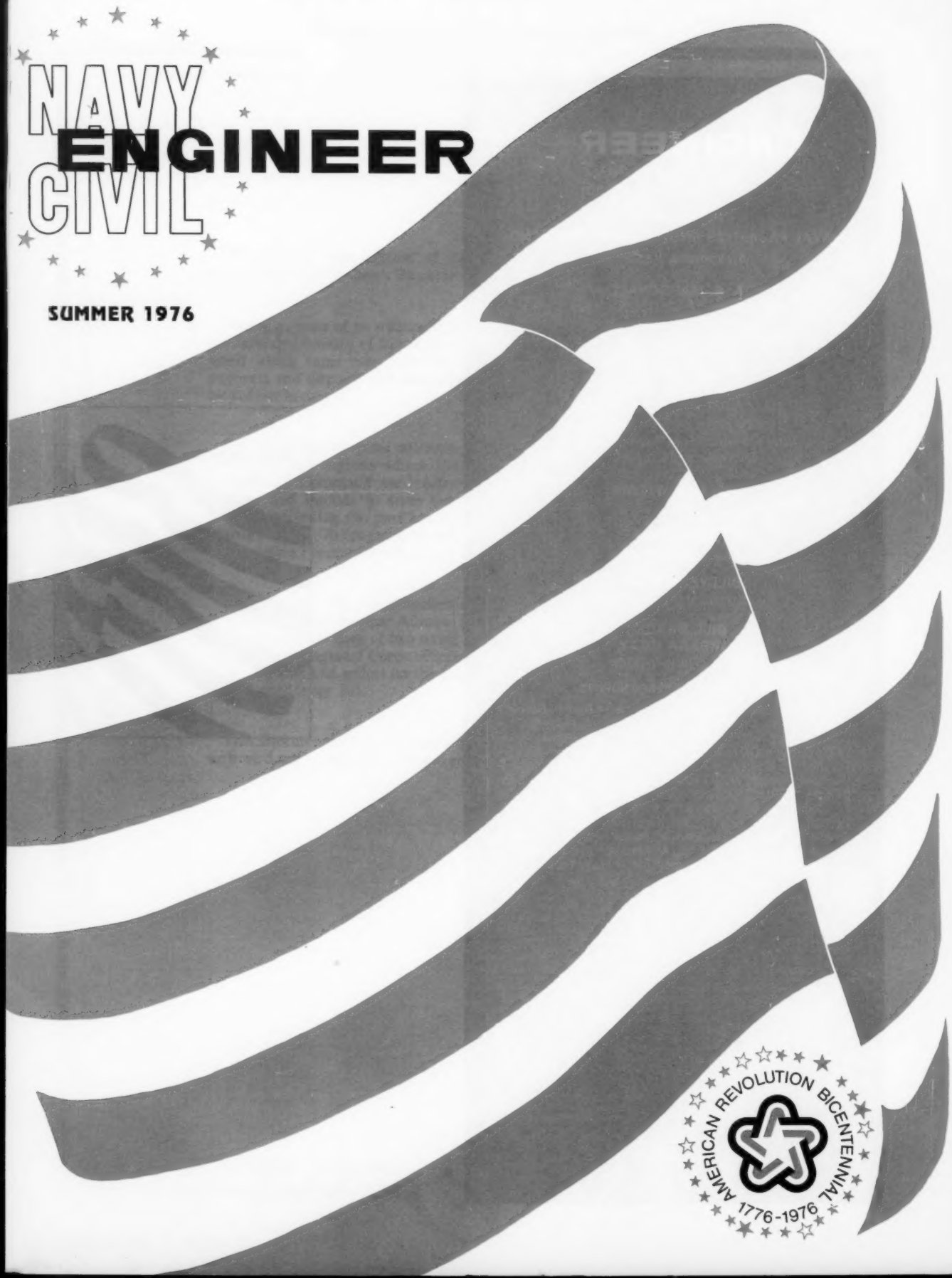
NAVY CIVIL ENGINEER

SUMMER 1976



NAVY CIVIL ENGINEER

VOL. XVII, NO. 2
(NAVFAC P-330)

Published By
NAVAL FACILITIES ENGINEERING COMMAND
Alexandria, Va 22332

A. R. MARSCHALL
Rear Admiral, CEC, U.S. Navy
Chief of Civil Engineers
Commander, Naval Facilities
Engineering Command

DONALD G. ISELIN
Rear Admiral, CEC, U.S. Navy
Deputy Chief of Civil Engineers
Vice Commander, Naval Facilities
Engineering Command

HAROLD WELSH
Editor

TOM HARRIS
Associate Editor

BILLYE NEWLEE
Editorial Assistant

BILL BRACK
BARBARA GRAY
Contributing Artists

REGIONAL CORRESPONDENTS

ATLANTIC DIVISION, Norfolk, Va. — Diana Barnett; CHESAPEAKE DIVISION, Washington Navy Yard, D.C. — Don Malone; NORTHERN DIVISION, Philadelphia, Pa. — W.P. Carty; SOUTHERN DIVISION, Charleston, S.C. — Traynor Ferillo; PACIFIC DIVISION, Honolulu, Hawaii — Seymour Francis; WESTERN DIVISION — Cdr. John I. Dick-Peddie; PUBLIC WORKS CENTERS: Great Lakes, Ill. — Lt. Comdr. L. F. Hendrick; Norfolk, Va. — R. J. Shafer; Pensacola, Fla. — J. F. Whitney; San Diego, Calif. — Gerald R. Boling; Pearl Harbor, Hawaii — Duncan Chang; Yokosuka, Japan — Mrs. S. A. Matula; Civil Engineering Laboratory, CBC, Port Hueneme, Calif. — Jerry Thomas.

Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. It does not alter, amend or supersede official regulations, orders or directives. Cost of printing is charged to appropriated funds for maintenance and operations of the Naval Facilities Engineering Command.

Published quarterly, The Navy Civil Engineer is intended for the information of Regular and Reserve personnel of the Civil Engineer Corps, United States Navy, and key civilian employees of the Naval Facilities Engineering Command, subordinate commands and other mission-oriented activities.

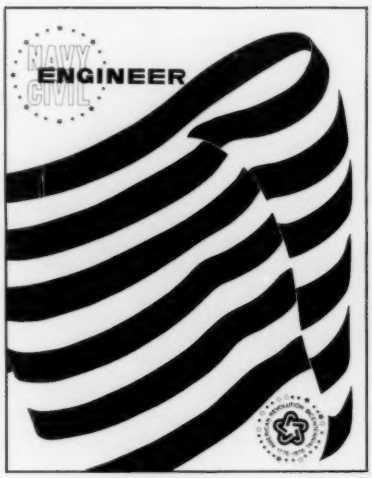
Contributions, comments and criticisms from readers are welcomed. Original manuscripts are particularly invited. Opinions or suppositions expressed by authors are solely their own and do not necessarily reflect command or official concurrence. An inquiry should be directed to the Editor prior to submission of material to prevent duplication and to aid in publication planning. The Editor reserves the right to condense accepted material or to complete minor alterations without author consultation. Material appearing in The Navy Civil Engineer may be reproduced. It is recommended that prior to reproduction an inquiry be made to the Editor for additional data that may have become available.

All material accepted for publication by the Editor becomes the property of the U.S. Navy without recompense to the originator.

This periodical is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20401. Price 75c per copy. Subscription $3.00 annually for domestic subscribers; $3.75 annually for foreign subscribers. Send remittance to the Superintendent of Documents. Entered as a controlled circulation publication at Paramount, Calif.

Published at the Naval School, Civil Engineer Corps Officers (CECOS), Port Hueneme, Calif. 93043.

Manuscripts for editorial consideration and inquiries should be directed to: The Editor, The Navy Civil Engineer Magazine, Code C20M, Naval School, Civil Engineer Corps Officers, Port Hueneme, Calif. 93043. Telephone: (805) 982-3104, Government Autovon 360-3104.



Welcome to this edition of *The Navy Civil Engineer,* which is in observance of our Nation's Bicentennial anniversary.

Recently, most of us witnessed a series of magnificent events centered on the extended holiday of July 4th which universally recaptured the American spirit which some may have thought had long withered. The parades, pageants and displays stimulated thoughts of the beauties (and a few uglies, too) of our heritage.

Our Bicentennial issue attempts to sketch briefly the historical background of the regions where the major units of the Naval Facilities Engineering Command are located and how the command has served, is serving, and intends to serve the Navy in that locality. Interjecting the articles concerning the past are those of contemporary nature, particularly *Seabee Journal '76* (pages 41 to 60), a glimpse of the activities of the Naval Construction Force, of which we are so proud.

We hope you will enjoy recollections of a dinner at the Army-Navy Club in 1918 as related by Rear Admiral L. B. Combs (page 31) . . . admire and perhaps envy the lives of two naval officers (page 14) . . . see 'how it goes' for two Civil Engineer Corps officers assigned to a top level office, OPNAV (page 38) . . . and reflect on the remarks of our cherished mentor, Admiral Ben Moreell (page 20).

This Bicentennial edition briefly portrays where we have been and what we have done — and where we are and what we are doing.

A. R. Marschall

A. R. MARSCHALL
Rear Admiral, CEC, USN
Chief of Civil Engineers
Commander
Naval Facilities
Engineering Command

BUREAU OF YARDS AND NAVFAC: 1966

The First — Capt Lewis Warrington, a line officer, became the first chief of the Bureau of Yards and Docks when that agency was created in 1842.

DR. VINCENT A. TRANSANO
Supervisory Historian
NAVFAC Historical
Information Branch
NCBC, Port Hueneme, California
• Alexandria, Va.

Across a span of more than 134 years, the Naval Facilities Engineering Command has been responsible for the Navy's shore establishment. Founded as the Bureau of Navy Yards and Docks in 1842, this organization originally showed little evidence that it would one day develop into the large, dynamic organization which is today located in Alexandria, Va. Indeed, the Bureau of Navy Yards and Docks initially employed only five people: one civil engineer, one draftsman, one chief clerk and two assistant clerks.

As the Civil Engineer Corps had yet to be founded, the civil engineer, William P. Sanger, was naturally a civilian like his fellow workers and the first chief of the new bureau was a line officer, Captain Lewis Warrington.

At this time the bureau was only responsible for seven Navy yards, four hospitals, four magazines, five naval stations and the Naval Asylum — the total shore establishment in 1842. The present-day Naval Facilities Engineering Command, which is responsible for literally thousands of facilities, grew from these humble beginnings.

The Civil War led to a dramatic expansion of the bureau as well as to a change in its name. A congressional act of 1862 authorized an increase in the bureau's staff from five to eleven civilians to meet wartime exigencies. The same act changed the name of the bureau from the Bureau of Navy Yards and Docks to simply the Bureau of Yards and Docks. This was the name it was to keep for the next 104 years. Although it more than doubled its strength during the war, the bureau's growth was certainly not proportional to that of the Navy in general during the same period. prior to the war the Navy had had 90 ships and 8,900 officers and men. By the end of the war, it had 670 ships and 58,200 men. On the other hand on 1 June 1865 the whole Navy Department consisted of only 89 persons, including the Secretary of the Navy, the civilian staff, and officers on duty there.

The period 1865-1885 was generally one of stagnation for the Navy and the bureau. As happens after every war, massive cutbacks followed the Civil War. It was not until the mid-1880s that the United States embarked upon a program of naval expansion to meet the challenge of rapidly expanding foreign navies such as those of Britain, Germany and France.

Of interest between 1865 and 1885 was the change in the status of Navy civil engineers. Beginning in 1867 a series of acts led to their being granted status as naval officers. Thus the Civil Engineer Corps came into being.

By 1890 the bureau had thirteen Navy yards and stations under its cognizance. The administration of the shore establishment was steadily becoming more complex as the century drew to a close. In past years, technological innovations such as steam power and iron construction had complicated the bureau's job and had necessitated numerous alterations at the navy yards under the bureau's cognizance. By the 1890s such innovations had become a never ending stream which continually led to new responsibilities for the bureau.

A proposed naval reorganization in 1909-1910, the Newberry Plan, could very well have cut short this growth forever. Plans to reorganize the Navy Department were not unusual at this time. In fact, the Newberry Plan was merely the culmination of a whole series of organizational studies, proposals and plans produced between 1900 and 1910.

In essence, Secretary of the Navy Newberry recommended a consolidation of Navy Department functions. Under this consolidation the Bureau of Equipment and the Bureau of Yards and Docks would be abolished and their duties assigned to other bureaus. The Civil Engineer Corps would continue to exist but its personnel would be subordinated to the Corps of Naval Constructors who would run the Navy yards. Fortunately for the bureau, the plan, at least insofar as it involved the bureau of Yards and Docks, was dropped. In fact, it was the Corps of Naval Constructors that finally became extinct.

Having survived the organiza-

DOCKS 1842-1966

134 Years Of Conducting The Business Of The Navy Ashore... A Historical View

tional crisis of 1910, the bureau soon had to face the challenge of the First World War. In order to meet the exigencies of this war, the bureau had to greatly expand its entire operation. Symbolic of this expansion was the creation of the office of Assistant Chief of the Bureau on 19 August 1916. Just prior to the outbreak of the war, the bureau's staff doubled in size. Its personnel jumped from 63 to 120 in only seven months — strong evidence of the bureau's fevered preparation for the war. The most notable organizational change during this period was the creation of a system of project managers on 26 March 1917. Each construction project, according to its type, was henceforth assigned to a project manager who would be responsible for it from its inception through its completion. The system, somewhat modified, is still in use today. By 11 November 1918, the bureau employed 252 military and 468 civilians. The magnitude of construction accomplished during the war was staggering for the time. Between 1 July 1916 and 15 October 1917 alone, $108,809,630 was appropriated for work over which the bureau had cognizance.

During the postwar period there were the usual personnel cutbacks and reductions in funding. The office of Chief of Naval Operations was created during this period. This office was to gradually increase its influence over the bureaus, which had previously been responsible directly to the Secretary of the Navy. The number of officers and civilian personnel remained relatively constant during the 1920s, fluctuating between 99 and 123, but during the 1930s, there was a steady increase in civilian personnel.

On 1 December 1937 a new era opened for the bureau with the appointment of Admiral Ben Moreell as Chief of the Bureau. Admiral Moreell recognized that his new command wad badly in need of a major reorganization. Although it took more than two years, he carried out several fundamental organizational changes which greatly enhanced the bureau's capabilities. The first major reorganization under Admiral Moreell took place in 1941. It represented the first radical change in the bureau's organization since 1917. Under the new organization the bureau was divided into five major departments.

This reorganization was completed just in time for the commencement of the Second World War. During the next four years the bureau was called upon to make the greatest effort yet demanded of it. The Second World War saw an unprecedented expansion in the bureau's field organization. Advance bases had to be established for trans-shipping supplies and men to the distant theatres of the war. Bases also had to be built for the Navy's newest operational component — the Seabees.

Established by Admiral Moreell in 1942, the Naval Construction Battalions were manned largely by experienced construction workers and led by Civil Engineer Corps officers. Their mission was to carry out construction in forward areas of the war, often under enemy fire.

And Then — RAdm Joseph Smith was chief of the Bureau of Yards and Docks from 1846 to 1869.

In 1944, this wartime expansion necessitated further organizational changes in the bureau. A sixth department was established that year to deal with the numerous advance bases that the bureau had built. Following the end of hostilities this department was disestablished.

During the period 1 January 1943 to 1 June 1944, the tempo of activity at the bureau reached completely unprecedented levels. Expenditures for public works by the bureau rose from $1,200,000,000 to the staggering amount $4,450,000,000. Civilian employment in the bureau reached a wartime peak of 1,429 in 1942 and by January 1943 was only a modest 1,321. Although civilian staffing was in decline the number of military personnel was still climbing so that the bureau reached

(Continued on page 28)

Atlantic Division

A Somber July 4, 1776

• Norfolk, Va.

There were no joyous celebrations in Norfolk in 1776 like those held in July 1976. No ships were docked along the waterfront and the streets were deathly still as the entire town had been bombarded by the British Fleet and burned by the townspeople to prevent it from falling to the British attackers.

The destruction of Norfolk was one of many factors which contributed to the final break with England.

In 1607, Christopher Newport and a party of 30 landed on the grassy dunes of Cape Henry and claimed possession for His Majesty, King James. This small party, the first permanent English colonists in America, went on to found the Jamestown Colony.

By command of King Charles II, the colonial assembly passed an act in 1662 for the erection of a town where the tobacco of the three nearest counties was to be brought for storing and export. An early attempt to create a town, James City, failed and it was not until August, 1680, that the Lower Norfolk County carried out the provisions of the law and established Norfolk. Norfolk became the largest town in Virginia and was made a royal borough by King George II in 1736. With the birth of the new nation, Norfolk was rebuilt and trade ships entered from London, Madeira, and various points in the West Indies.

The shores of Southeastern Virginia became examples of 18th century lifestyles. On the north side the plantation system existed and on the south side there were the small farms much like those found in New England, New York, and Pennsylvania.

The War of 1812 brought disaster to Norfolk's economy. The Civil War and the occupation of Norfolk by Northern forces again destroyed the economy.

The period following the Civil War witnessed the reconstruction and revitalization of the Hampton Roads area. The tidewater's value as a seaport and military base was recognized and it rapidly developed into a hub of commercial and naval activity particularly during World Wars I and II.

During both these wars, Norfolk, with her great port, played an essential role. Hundreds of thousands of soldiers and millions of tons of cargo sailed from Hampton Roads during both these periods.

Since World War II, Norfolk has been undergoing tremendous change and growth. Norfolk is the principle city of Hampton Roads, one of the world's largest harbors. Merchant ships from all over the world make Norfolk their port of call. Hampton Roads leads the world as a coal-loading port and regularly exports more tons of cargo per year than any other port in the United States.

The Headquarters, Atlantic Division, Naval Facilities Engineering Command is located on the Naval Station in historic Norfolk. The headquarters building was used as an exhibit hall during the Jamestown Exposition of 1907 honoring the tercentennial of the landing at Jamestown and the sailing of the famous "White Squadron" on its world cruise from Hampton Roads.

The residence of the Commander, Atlantic Division, is a cottage erected by Walter Baker and Company Ltd. for the 1907 exposition. The kitchen of the cottage contained a complete exhibit of the company's products and miniature machines showing the processes of manufacture of chocolate and cocoa. The building still stands in its original location and is now known as the Chocolate House.

The land for the 1907 exposition was purchased and the site became the Norfolk Naval Station.

The Naval Facilities Engineering Command, the oldest of the systems commands, was established as the Bureau of Yards and Docks in August 1842. Through the ensuing years the activities of this command expanded and it played a vital part in providing shore facilities in World War II as well as the fighting Seabees and their construction in the theaters of operation.

In 1942 field offices were established and thus began the District Public Works Office, Fifth Naval District in Norfolk and the Atlantic Division in New York.

In 1962 the Atlantic Division moved from New York to Norfolk and this field office's operation expanded to include Iceland, Newfoundland, Azores, and Bermuda as well as the Fifth Naval District. In 1966 the Navy Department was reorganized and the Bureau of Yards and Docks was redesignated the Naval Facilities Engineering Command — a much more appropriate title because of the expansion beyond the yards and docks stage.

The Norfolk-headquartered engineering field division then

became the Atlantic Division, Naval Facilities Engineering Command (LANTDIV).

The last major organizational change occurred in 1970 when the field divisions were reduced from thirteen to six. With the disestablishment of the European Division and the Caribbean Division LANTDIV was assigned responsibilities for NAVFAC functions in Europe extending as far as the Indian Ocean and the Caribbean area as far south as Panama with some additional work in South America.

At present the Atlantic Division provides support to the operating forces of the Navy, the Marine Corps, and other governmental offices and organizations in a geographic area of construction responsibility that encompasses more than one-third of the world.

In 1974 LANTDIV was the location of a formal ceremony which marked one of the most significant real estate purchases in the history of the City of Norfolk — the acquisition of 494.8 acres of land at Sewells Point from the Norfolk and Western Railway Company for the purchase price of $17.8 million.

Where The Fleet Was Born

• Norfolk, Va.

Gosport Shipyard, the forerunner of the Norfolk Naval Shipyard in Portsmouth, Virginia was established under the British flag in 1767 by Andrew Sprowle. A Scottish merchant with visions of creating a great shipyard to serve the crown, Sprowle acquired the tract of land on the Elizabeth River from Colonel William Crawford who had founded the Town of Portsmouth 15 years earlier.

Obviously an industrious fellow, whose chief interest was in making money, Sprowle made a fortune from the shipyard supplying the needs of the early settlers and the requirements of the Royal Navy, which often visited the Port.

In a letter written by William Nelson of Yorktown, Virginia in 1768, Sprowle is described as a very elderly, almost bald man, who tied what little hair he had in a pigtail, instead of wearing the customary powdered wig. Nelson also wrote that Sprowle's attire was worn and his silk stockings marred by "two or three holes."

His shabby dress did not reflect on his reputation as a wealthy landowner and import-export agent. He was appointed a Trustee of Portsmouth, president of the Court of Virginia Merchants and a British Navy Agent. At the outbreak of the revolution, however, he cast his lot with the Tories and was forced to flee with Lord Dunmore, the Royal Governor. All his lands and properties were confiscated and the title of the Gosport Shipyard turned over to the newly independent Commonwealth of Virginia.

Operating under the Virginia flag, the shipyard played a leading role in the revolution until May 1779, when it was interrupted by the invasion of a British fleet under Admiral Sir George Collier who was transporting troops commanded by General Matthewes. Anchoring in the Elizabeth River, Matthewes disembarked his men, occupied Portsmouth, and burned the shipyard over vigorous protests from Admiral Collier who wished to use the yard's extensive facilities.

Following the end of the Revolution, the Virginia and Continental Navies were disbanded and the yard was inactive until 1794, when Congress passed an "Act to provide a Naval Armament." Public opinion, aroused by the acts of the Barbary pirates against the country's growing merchant marine, forced Congress to pass this act which authorized the construction of six frigates.

The work was entrusted to the Secretary of War who leased the necessary facilities and built the ships under the supervision of their captains and government-employed naval constructors.

Following the creation of the Navy Department in 1798, the *Chesapeake,* a 36-gun frigate, was commissioned in 1800 at Gosport Shipyard, one of the six original vessels designed for the new Navy.

Continued naval activity resulted in the Federal purchase of the shipyard in 1801 from the State of Virginia. Expansion and improvement continued after the War of 1812, and in 1833, the 74-gun ship *Delaware* entered as the first U.S. vessel to be received in the newly completed drydock. Built of huge blocks of Massachusetts granite, it is still in daily use after more than a century, requiring only a caisson replacement as required.

During the Civil War the yard was evacuated and burned twice, first by the Federal authorities in 1861, and again by the Confederate Navy in 1862. The steam frigate *Merrimac,* under repair at the yard during the former demise, was burned to the waterline and sunk. Unlike her sisters, however, she was destined to become the ship that changed the course of Naval history.

When the Confederacy assumed command of the yard, work and restoration was immediately begun and the *Merrimac* raised and drydocked. It was found that her engines were usable and designs by John L. Porter, A Naval constructor from Portsmouth, were drawn to convert the steam frigate into the famed ironclad ram, *CSS Virginia.*

Two memorable events of 1907 attracted attention to the locality as a great naval port: the Jamestown Exposition, honoring the tercentennial of the landing at Jamestown; and the sailing of the famous "White Squadron" on its world cruise from Hampton Roads.

The site of the exposition, equidistant from Norfolk, Portsmouth, Newport News and Hampton, was considered by many as ideal for a naval activity. When the United States entered World War I in 1917, a bill for the purchase of 474 acres (which is now the Norfolk Naval Base) passed both houses.

World Wars I and II brought great expansion to the yard and Naval Base. The first Public Works Center was established in Norfolk in 1948. Today, it serves in excess of 120 customers in the Norfolk Naval Complex as well as activities in the Atlantic area from Newfoundland to the Mediterranean.

Chesapeake Division

'The' Navy Yard

• Washington, D.C.

In 1975 the United States Navy celebrated its own bicentennial, one year in advance of the nation's two hundredth birthday.

The history of the Navy as a permanent institution of the American republic is somewhat shorter, however, and may be dated from the 1798 Act of Congress which established the Navy Department, authorized a secretary to run it, and led, one year later, to the acquisition of its first shore installation, the Washington Navy Yard.

For the next one hundred seventy-five years the naval shore establishment was to expand and contract with the pulse of world events. Because the Washington Navy Yard was sited on the Anacostia River, which is too shallow for the larger ships that were subsequently built, it quickly lost its role as a major shipyard. However, it did continue to serve the Navy as a center of ordnance production in the latter nineteenth century, as an ordnance research and development facility during the world wars, and as an administrative complex for the Navy today.

The former industrial functions of the Yard no longer exist, but the old high-bay brick warehouses and factory structures that housed them are still standing as a reminder of the industrial contribution that the Yard made during the Navy's history.

Despite the presence of many major commands which have found convenient office space in the buildings, there remain numerous architecturally-distinguished structures which stand vacant or serve as storage facilities for lack of better use. Located blocks from the Capitol and at the center of the National Capital Region's highway and soon-to-be-completed mass transit systems, the sixty-six acres of the Washington Navy Yard are clearly recognized as having the potential for meeting the future space and facilities needs of the Navy in the Washington area.

The past year the facilities planners of Chesapeake Division, Naval Facilities Engineering Command, have begun a study of the Washington Navy Yard to determine its future role in the overall Navy presence in Washington. The theme of this study is to develop a long range plan or Master Plan which incorporates adaptive rehabilitation techniques. This process can economically match the sound structures present at the Yard with the facility needs of the Navy in the Washington area. Two recent developments reinforced this concept. First, the success of projects for the conversion of Navy Yard buildings to a Marine Corps Historic Center and a Naval Historical Center reemphasize the historic and ceremonial value of the Yard, which is officially listed as a "historic precinct" on the National Register. Secondly, the National Endowment for the Arts released a study which received wide acclaim throughout the architectural design community calling for government agencies to consider the adaptive reuse of existing buildings as opposed to new construction.

Can the Navy profit from the experience gained from the redevelopment at Ghiradelli Square, San Francisco; or New Orleans French Quarter, two of this country's best examples for adaptive reuse? The answer will depend upon whether or not the handsome old warehouses and gun shops of the western end of the Yard can be economically renovated as efficient office space.

Most of the buildings under consideration for this transformation enclose a single huge vaulted space. They would have to be double or triple decked inside in such a manner as not to visibly clash from the outside with the giant arched windows which penetrate each facade.

Conflicts between the twin goals of extracting the maximum usable floor space from each building and preserving its aesthetic value must be satisfactorily resolved. Also, such an innovative approach will encounter major problems in fire code regulations, noise control, and energy conservation.

The Chesapeake Division planners are undertaking this problem as a challenge during the bicentennial year, the most appropriate time to gain support to preserve the future of one of the Navy's most historic real estate assets, the Washington Navy Yard.

Northern Division

Where 'Navy' Predates 'Nation'

• Philadelphia, Pa.

The nation's first warship, the frigate *Alfred*, was commissioned in Philadelphia in December 1775, Lt. John Paul Jones commanding. He received her into the Continental Navy by hoisting the Grand Union flag, which he called "the first flag of America."

The ceremony took place at her berth in the Delaware River just upstream from the present Philadelphia Naval Base, site of the headquarters of the Northern Division of the Naval Facilities Engineering Command (NAVFAC).

The center of world attention in this bicentennial year, Philadelphia

is known as the birthplace of the nation. It is, of course, famous as the home of the Continental Congress, the Declaration of Independence, the Constitution, and the Liberty Bell.

Not so well known, however, is the city's role in maritime and naval history.

During the last quarter of the 17th century, shipbuilding became an established industry on the Delaware River. By 1685, "six ships capable of sea voyage and many boats" had been built at Philadelphia.

A British historian wrote in 1698 of the quality, convenience and character of the wharves and other facilities for the loading and unloading, building and repairing of ships in Philadelphia. In 1700 four shipyards were building seagoing ships, and several smaller yards were turning out fishing boats and river craft. By 1718 there was extensive construction of ships for the English market.

In the 60 years between 1684 and 1744, 188 square-rigged, three-masted ships and about 700 two-masted brigs and schooners were built at Philadelphia, not including the fishing and river boats. Ship registers at Philadelphia show that from 1736 to 1745, 14,680 tons (99.1 percent) of all the vessels documented there were colonial built, and only 130 tons (.9 percent) were built in England.

During the later colonial period, three to twelve Philadelphia square-riggers (ships and brigs) were sold annually to British owners.

In 1750-51, a Philadelphia yard built two of the largest ships yet constructed in America — one of 320 tons, the other of 400 tons. Both sailed for England with cargoes of colonial goods, and *"on arrival at London were bought by the East India Company and placed in the regular East India and China fleet. They were as large as any merchant vessels built in England up to that time and of superior model and construction."*

The larger of the two remained in service for the East India Company for more than 30 years. On her first trip from London to India, one of her passengers was Warren Hastings, a young clerk who later became the first governor-general of British India and founder of the British Empire in Asia.

By the time of the Revolution, Philadelphia was a leading shipbuilding center in the colonies, with both its naval architects and the quality of its ships held in high

esteem. But the coming of hostilities brought to a halt all shipbuilding in American ports. The young government had no real navy, and most of its privateers were captured or destroyed by the British.

After a brief halt, the Philadelphia yards began converting merchant ships into war vessels and building new frigates ordered by Congress. The *Alfred* was one of these conversions — originally *The Black Prince*, the 200-ton, square-sterned vessel had been built in Philadelphia in 1774.

Seven other merchant ships were purchased by Congress and outfitted as men-of-war. Together they made up the nation's first fleet. In command was Essek Hopkins, who in December 1775 had been appointed "Commander-in-Chief of the Fleet," the only person ever to hold that title.

One of the Philadelphia shipyards turning out privateers and warships during the Revolution was owned by Joshua Humphreys. In 1801, three years after the establishment of the Navy Department, it was purchased by the government and became known as the Federal Street Navy Yard. Its eleven acres of ground cost the government $38,636.

Its first work consisted of repair and overhaul, and not until new construction was stimulated by the War of 1812 did the yard construct its first ship. This was the *USS Franklin*, a 2,257-ton, 74-gun ship of the line launched in 1815. A total of 38 ships was constructed at the Federal Street yard, including the Navy's first screw-propelled warship *(Princeton)*, the first twin-screw vessel in the Navy *(Pawner)*, the first steel ships constructed in a U.S. Navy shipyard, and the 3,000-ton *Pennsylvania*, the largest ship built in America to that time.

When the need for a larger yard became apparent during the Civil War, the shipyard began moving in 1868 to its present location on League Island in the Delaware River at the foot of Broad Street. The shipyard occupies 713 of these acres.

Among the yard's facilities are five drydocks, two marine railways, a foundry, modern electronics and machine shops, the only automatic propellor-profiling machine in the United States and the largest hammerhead crane on the East Coast. Its Drydock No. 1 was designed and constructed in 1891 under the supervision of Robert E. Peary, then a commodore, who later discovered the North Pole.

During World War II, new construction at the yard included the 35,000-ton battleships *Washington* and *South Dakota;* the

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

45,000-ton battleships *New Jersey* and *Wisconsin;* the *Essex*-class carriers *Antietam, Princeton* and *Valley Forge;* and the cruisers *Los Angeles* and *Chicago.* In 1943, the yard reached its war-time employment peak of *43,000!*

Beside the Naval Shipyard, the development of the Navy's shore establishment at Philadelphia has included the Naval Air Engineering Center, established in 1917 as the Naval Aircraft Factory, which built 200 flying boats during WWI; designed and built the dirigible *Shenandoah;* and built nearly 1,000 N3N "Yellow Peril" training aircraft between 1936 and 1942.

The Naval Air Development Center at nearby Warminster is a principal air research and development activity; NAS Willow Grove trains more than 7,700 reservists from a six-state area; NAS Lakehurst, N.J., conducts aviation research; and a center at Trenton, N.J., tests the Navy's turbines. Twenty-eight other activities at the Philadelphia Naval Base round out the shore establishment roster in the Philadelphia area.

BuDocks and now NAVFAC have played an important part in the continuing development of all these activities, first through the District Public Works Office in the Fourth Naval District, and since 1970 through the Northern Division, which was created by the consolidation of four similar engineering field divisions (Boston, Chicago, New York City and Philadelphia).

Southern Division

A Division Of "Firsts"

• Charleston, S.C.

Charleston, South Carolina, where the Naval Facilities Engineering Command's Southern Division maintains its headquarters office, is indisputably a "city of firsts."

Here are just a few of its more notable FIRSTS associated with U.S. military history:

• The *first* decisive victory in the American Revolution was gained at Charleston's nearby Fort Moultrie in 1776 when a strong British naval and land force was repulsed by 450 American patriots under Col. William Moultrie.

• The *first* shot of the War Between the States in 1861 was fired in Charleston harbor by Citadel Cadets on the Union steamer, *Star of the West.*

• The use of the *first* submarine to sink a man-of-war in actual combat took place in Charleston harbor in 1864. The Confederate submarine *Hunley* sank the *USS Housatonic* by exploding a torpedo under her. The wave thrown up by the explosion swamped the submarine, causing the death of the crew.

Charleston is the home of a sprawling Naval complex which began as a tiny repair base at Port Royal, S.C., during the Civil War and discontinued in 1901, when most of the land occupied by the present Naval Base was acquired. The Charleston Navy Yard (Naval Shipyard), the Naval Hospital and the Marine Barracks were the first activities to be located at the present site. The key shipyard facilities were completed between 1902 and 1909, among which were a drydock, a pier, five shop buildings and a powerhouse.

Thus, the Civil Engineer Corps has been an integral part of the Naval Shore Establishment in Charleston since the turn of the century, rendering a construction capability that has helped transform the once-tranquil marshlands adjacent to the Cooper River north of the city into one of the nation's most versatile and best-equipped naval shipyards.

In 1916, Charleston became the Headquarters of the Sixth Naval District — a jurisdiction which has nearly 3,000 miles of coastline — and the Naval Base is one of the largest shore establishments in that district.

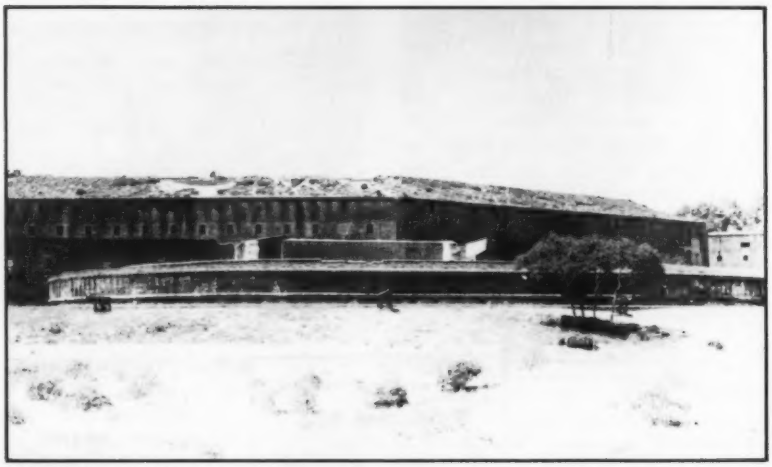
The present complex of activities results primarily from growth during two world wars. The picture presented today by the Charleston Naval Complex is one of expansion with a particular orientation toward service to the nuclear Navy and Polaris submarines.

The NAVFAC team of CEC officers and their dedicated civilian associates can point to the expansion of the Naval Shore Establishment in Charleston, especially to such major technical achievements as: a $16.5 million drydock (Drydock Five completed in 1964), the world's first drydock specifically designed for servicing Polaris submarines and other nuclear-powered ships; a completely modern, 500-bed Naval hosptial (a far cry from the one-room dispensary of 1906!); numerous housing units, administration and industrial buildings, piers, personnel support facilities and others.

Since its inception by the Continental Congress 200 years ago, the U.S. Navy has come from sail . . . to steam . . . to nuclear power. The Navy's history, in a very real sense, reflects the history of NAVFAC and the enormous expansion of the Naval Shore Establishment, as typified by the CEC achievements at the Charleston Naval Complex.

PWC Pensacola

History As A Way Of Life



HISTORIC — Fort San Carlos de Barrancas, once a major Spanish fort near Pensacola, is now National Monument.

• Pensacola, Fla.

Pensacola's first military installation pre-dates the American Revolution to 1697 when the Spanish built a wooden-posted fort on a bluff overlooking the entrance to Pensacola Bay.

The Spaniards had been exploring and establishing settlements in the area as early as 1528 but none became permanent. A large fleet of ships entered the bay in 1559, with more than 2,000 persons settling the area. Later the site was to become Fort San Carlos de Barrancas, an earth and brick fortification which is now under the National Park Service, although it is surrounded by the Pensacola Naval Air Station.

The Treaty of Paris, in 1763, gave the Floridas (East and West Florida divided by the Apalachicola River were then separate entities), to Great Britain by Spain in exchange for Cuba. The French had taken over the Floridas for brief periods earlier in the 18th Century.

At the time of the American Revolution, the British controlled the Pensacola area and while the 13 colonies declared independence and fought the British in the North — the Floridas remained firmly under the King's rule.

According to a historical monograph written by a former commander of the Pensacola Navy Yard, Rear Admiral Lucien Young, the British almost were forced to flee by Nature's whims.

"It was during the 20 years of British occupancy that Pensacola saw its most promising and prosperous days except during the last few years; however, an event occurred in 1780 and 1781 and came near forcing an exodus of Her Brittanic Majesty's subjects. In those two years Pensacola was visited by two severe earthquakes that shook the foundations to the very center, houses were destroyed, the sea foamed and thunder rolled, and the town was threatened with a destructive conflagration."

Spain, taking advantage of the American Revolution, allied with France and sent troops to take command of the West Florida region from the British. Spanish rule continued until the War of 1812 when General Andrew Jackson — reacting to the fact that British ships and troops had violated neutrality by filling garrisons at For Barrancas and in the City of Pensacola, too — captured the town and the forts in early November 1814. It was from Pensacola that Jackson departed for his famous New Orleans battle, the final fighting of the war.

On May 24, 1824, Congress approved an Act establishing a naval station at Pensacola and on March 3, 1825, the Secretary of the Navy appointed a board of three Navy Captains, Biddle, Bainbridge and Warrington, to visit Pensacola and choose a site.

The tract of land approved by the commissioners had several factors to recommend it; close to the mouth of Pensacola Bay; close to tracts of live oak forests, the wood considered necessary for ship construction and repair; old Fort San Carlos, in disrepair, but of value in developing new mainland fortifications, and the land area was largely unoccupied. Construction began on the Navy Yard almost at once but what happened through the next seventeen years is now difficult to document.

In 1821, a young botanist and lawyer, Henry Marie Brackenridge met General Andrew Jackson while traveling by Mississippi steamboat to New Orleans. This meeting with General Jackson led to the establishment of the Naval Live Oak Reservation at Pensacola. In 1827, Colonel Joseph M. White, the Florida delegate to Congress, introduced a resolution: "to inquire into the expediency of providing, by law, for the more effectual preservation of live oak timber for the Navy of the United States."

Brackenridge became the first superintendent of the new reservation in December 1828. The oak timbers were harvested from the Live Oak Reservation across the Bay and transported to the Pensacola Navy Yard to build ships from the early 1840's until the outbreak of the Civil War.

In 1837 a brick wall was built around the Navy Yard. This wall portions of which still stand, divided the Navy Yard from the towns of Warrington and Woolsey.

Early references made concerning engineers appeared in reports of the 28th Congress: "Report by S. D. Dakin on estimated costs of a sectional floating dry dock for Pensacola," also a report of James Herron, Civil Engineer, U.S. Navy, Pensacola, April 15, 1843, on the "location, plan of construction, and probable cost of constructing a permanent wharf at the Navy Yard on Pensacola Bay, Florida."

In the years following the Mexican War (1846-1847), substantial buildings and a floating dry dock were built, for the docking, repairing and building of the largest ship then contemplated for naval warfare.

Two frigates were built between 1855 and 1859, the 800-ton *Seminole* and the 2000-ton *Pensacola*, with other ships repaired, all using the oak timbers from the Naval Live Oak Reservation. However, the arrival of "steam and steel" following the Civil War precluded the need of Pensacola's timber reserves and antiquated shipyards. In 1911, the Navy Yard at Pensacola was ordered closed.

In 1914, the aviation unit from Annapolis, consisting of nine officers, 23 men, seven aircraft, portable hangars, and other gear, under LT J. H. Towers as Officer-in-Charge, arrived at Pensacola on board the *USS Mississippi* and *Orion* to set up a flying school. LCDR Henry C. Mustin, in command of the station ship *Mississippi*, was also in command of the aeronautic station.

E. H. Brownell, CE, USN (rank unknown) became the first Public Works Officer upon establishment of a Public Works Department on January 29, 1914.

Official designation as Naval Aeronautic Station, Pensacola occurred on November 16, 1914. Command shifted from the station ship to headquarters ashore at this time.

The Public Works Center, Pensacola was commissioned July 1, 1965, Capt. C. E. Grohs, CEC, USN, commanding. On July 30, 1976, the center relocated to the newly constructed Consolidated Public Works Center located in the Barrancas area aboard the Naval Air Station.

PWC Great Lakes

Where Seabees Were Born

The Great Lakes Naval Base was dedicated as the Great Lakes Naval Training Station on 28 October 1911 by President William Howard Taft. Constructed on the banks of Lake Michigan, the 172 acres had been purchased by the Commercial Club of Chicago and presented to the Navy in 1905. The training capacity was 1,500 men and there were 600 recruits at the time of the dedication.

During World War I, Great Lakes expanded from 3,000 men in the spring of 1917 to 50,000 in the fall of 1918. Captain William A. Moffett, the station commandant, directed a massive construction effort which in October 1917 saw the men out of tents and housed in steam heated wooden barracks.

A bigger building boom took place in 1918. The massive influx of new men had the tents in use again. Captain Walter H. Allen CEC, USN, formed "The Fighting Tradesmen." The "tradesmen" were composed of enlisted men who were experienced in the building trades. They built Great Lakes facilities by day and received their military training in the evenings. In a year's time, this organization grew to number 1,200. The modern Seabees trace their origin to these "Fighting Tradesmen."

The temporary structures built during World War I were later removed and permanent accommodations constructed to support 3,500 men.

In June 1940, construction of five barracks was undertaken by the Bureau of Yards and Docks. The barracks were standard H-shaped temporary buildings accommodating 225 men. A second enlargement program in September 1940 added ten barracks, a drill hall and a swimming pool. The station continued to expand in the summer of 1941 with the addition of six barracks, another drill hall and a recreation building.

In early February 1942 the addition of 87 buildings was formally contracted for. This was accompanied by the award of twelve other fixed-fee contracts, which were to provide 54 more barracks and attendant structures.

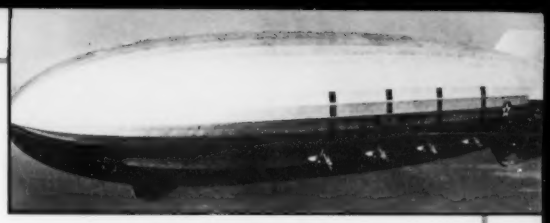
The laminated wood arch, superseding the conventional timber truss in drill-hall construction, made its first appearance in this expansion at Great Lakes and set the pattern for its subsequent use at other stations. This great expansion program arrived at the stage of usable completion in June 1942 and enlarged the capacity of the station to 44,000 men.

In June 1942, the Bureau of Yards and Docks undertook the further expansion of Great Lakes to accommodate an additional 20,000 recruits. One hundred new barracks were built, together with three drill halls, six mess halls, a sewage treatment plant and many other structures. On September 21, just two months and two days after the first delivery of lumber to the site, all barracks and mess halls were in commission and occupied.

This expansion brought the station's capacity to about 68,000. A total of 675 new buildings had been built during the two years.

After World War II, the capacity of the station was significantly reduced. Temporary barracks and other facilities were replaced by modern brick and masonry structures. The Navy received an award for the design of one group of barracks. Construction continues under the supervision of the Northern Division, Naval Facilities Engineering Command.

The Great Lakes Naval Base receives public works support from the Navy Public Works Center. The Public Works Center was created by consolidation of the Public Works Departments of the Naval Administrative Command, the Naval Hospital and the Naval Supply Depot and was commissioned on 1 July 1965. It currently employs approximately 650 civilian employees.



Western Division

From De Anza To Treasure Isle

• San Francisco, Calif.

On 23 October 1775, Juan Bautista de Anza, Mexican soldier-explorer, left the Presidio of Tubac in Sonora, Mexico, to lead an expedition of 240 men, women and children beyond the Colorado River to Mission San Gabriel and to Monterey. Among his company was Alferez (Ensign) Jose Joaquin Moraga.

Stationing a few soldiers in Monterey, De Anza and the majority of his company left seeking a route to San Francisco.

The Presidio of San Francisco was dedicated on 17 September 1776; the mission on 9 October 1776.

Upon De Anza's return to Mexico, he was named Governor of New Mexico and Ensign Moraga was advanced to lieutenant and assigned as Commandante, Presidio of San Francisco.

The De Anzo Expedition was relived in California during 1976 bicentennial activities in a modern trek following the original route.

The Western Division, Naval Facilities Engineering Command serves a variety of activities in the western U.S., including shipyards, air stations, hospitals, naval weapons stations and public works centers. Many of these activities are rich in historical significance and contributions to Naval accomplishments during war and peace.

For instance, the name Mare Island, subsequently the name of the shipyard at Vallejo, Calif., came about through an accident. In 1838, a barge loaded with cattle and horses capsized during a sudden and rare squall that swept through San Francisco Bay.

One of the horses was owned by the wife of General Vallejo. The horse survived the accident by swimming to a nearby island and General Vallejo named the island "Isla de la Yegua" (Mare Island).

Since its inception in 1853, the Mare Island Naval Shipyard has become known for construction, conversion and repairs of nuclear-powered submarines. The change-over of production from conventional type ships to nuclear-powered ships required extensive design and construction changes for nuclear facilities. The Mare Island Naval Shipyard is a California Registered Historical Landmark.

Property for the present site of the Naval Air Station, Alameda, Calif., was originally acquired by the U.S. Government for the Army which started construction of Benton Field Air Depot. Subsequently, the land was transferred to the Navy and construction of the Naval Air Station was started in 1938.

During World War II, facilities were enlarged and NAS Alameda became the "aviation gateway to the Pacific" through which passed men, ships and supplies for overseas destinations.

It was at NAS Alameda that General Doolittle and his B-25 bombers were taken on board the *U.S.S. Hornet*, to make the first air strike on the Japanese homeland.

"Flying aircraft carriers" were once stationed at the Naval Air Station, Moffett Field, located in Sunnyvale, Calif. This description belonged to the huge lighter-than-air ships constructed for the Navy in the 1930s as they were fitted with five fighter planes and could launch and retrieve these planes while in flight.

The California-mission style design for most of the buildings of characteristic arches and red tile roofs reflects the area's Spanish heritage. The major exception to this design is the huge hangar constructed to house the massive airships *U.S.S. Macon* and later the *U.S.S. Akron*.

The original hangar is 1,138-feet long, 308-feet wide and 198-feet high and is listed as a Naval Historical Monument. Two additional hangars, smaller in size, were constructed during World War II because of the extensive training program for airship (blimp) pilots. In April 1942 the activity was renamed U.S. Naval Air Station, Moffett Field, in honor of Admiral William Moffett, whose naval career was dedicated to securing a place in the armed forces for lighter-than-air craft.

A man-made island in the middle of San Francisco Bay? That is the location of the Naval Station, Treasure Island. The land-fill of 400 acres was accomplished by the Army Engineers and was completed in 1937 for the City of San Francisco. This was the site for the San Francisco World's Fair (1939) commemorating the completion of the Golden Gate and San Francisco-Oakland Bay bridges.

Once the island was formed, topsoil was brought in so that this island could be landscaped. The

NEW — P-3 ASW aircraft over dirigible hangar at NAS Moffett (top). **OLD** — USS Macon, a flying aircraft carrier, picks up two tiny biplanes.

island was first called "Gold Island" because the topsoil came from the area where gold was found in the original California gold strike and, perchance, there might be a few nuggets remaining in the topsoil. The name didn't catch on and so the name of Robert Louis Stevenson's book "Treasure Island," was substituted and immediately caught hold.

When the World's Fair was over, the land was to be used for an airport for San Francisco. However, this plan was abandoned and a land exchange with the Navy was completed. Presently, in addition to other Naval activities, the Commandant of the Twelfth Naval District is headquartered on Treasure Island.

Not Mr. and Mrs. (or **Ms.**) ...

By ROBERT M. QUITTNER
Navy Photographer

• San Diego, Calif.

John and Joyce Fessler lay claim to a minute segment of Navy history. To the best of their knowledge, they are the first couple to have met and married while officer candidates at Newport, R.I.

At an informal gathering of classmates following their first week of training, the two detected a mutually quickening pulse rate and began to date on a regular basis. Three months later, they said their vows in the picturesque base chapel and departed man and wife.

Navy life has been essentially good for the couple. They rent a spacious modern apartment and work in separate commands only minutes from home. John, a civil engineering graduate of Penn State, is attached to the Navy Public Works Center (PWC), Naval Station, San Diego.

An Ensign in the Civil Engineer Corps, he bears the title of activity civil engineer — "that means I'm a combination manager and industrial representative for PWC. It's part of my job to know precisely what the Public Works Center can do to help our clients and, generally, in what manner a specific project should be carried out."

Projects can range from routine maintenance of a work area to a complete overhaul. In some cases, a job may consist of the design and construction of an entire building. Additionally, it could include the selection and installation of specific kinds of equipment needed to make it complete and functional.

John Fessler is relatively new to the Navy, but the Navy is hardly new to John. His father, William Craig Fessler II, retired as a Navy chief postal clerk Despite many years of travel in the service, the Fessler family considers Williamsport, Pa. homeport.

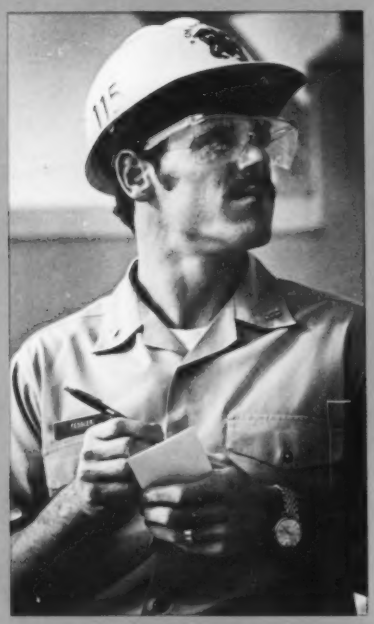
Joyce (nee Zongrone) Fessler grew up in Utica, N.Y. and earned a BA in English and a teaching certificate from Rosary Hill College. She did graduate work in English, then taught related subjects for four years in the Utica school district. Together with John, she is taking graduate courses in business administration at night.

Born with a need for diversification and change, Joyce began to think about travel and a more dramatic lifestyle. Although an active campaigner against the war in Viet Nam during her college years, her philosophy toward the military mellowed afterwards. "I came to the conclusion that the military did not create wars — it faithfully followed orders after other factions created a ruckus."

She began to "shop" among various military recruiters, seeking an alternate way of life.

"Most recruiters completely turned me off with their chauvinistic commentary amout women or dumb attempts to be coy," she said. Better "vibes" emanated from the Navy representative, however, and Joyce was accepted for Officers Candidate School (OCS).

"During the 19-week course, I learned the basics of driving a ship while taking exactly the same courses as the guys.



AT WORK — New LTJGs John and Joyce Fessler have different careers. John is a civil engineer and Joyce is a speechwriter for 11ND Commandant, RAdm Samuel Gravely. Adm Gravely has been nominated to command the U.S. Third Fleet with the rank of vice-admiral.

They're The **Lieutenants**
FESSLER

"OCS went coed in 1972 and from that time on, women and men were treated as academic and physical equals in training. Everyone learned refueling procedures, survival techniques, ship nomenclature and basic navigation. Mixed teams raced through realistic damage control drills and took command of small patrol craft while learning small boat handling."

After graduation from OCS, Joyce Fessler received orders to the interservice Defense Information School (DINFOS) near Indianapolis, Indiana. Today she is a speechwriter for Rear Admiral Samuel L. Gravely Jr., Commandant, Eleventh Naval District, and an Assistant Public Affairs Officer. And on June 29, Joyce was promoted to the rank of lieutenant, junior grade.

Joyce is also a member of the Commandant's Training Team, responsible for teaching military people how to solve problems and grievances through channels carefully designed for this purpose.

As a people's advocate, she particularly enjoys this phase of her billet. In college, she campaigned for student rights. As a teacher, she actively represented the American Federation of Teachers. In an age when intelligence and reason struggle to prevail over sheer force, the diminutive (height: barely five feet) officer has never considered physical size a deterrent to progress.

With a backing of civilian work experience, Joyce Fessler entered the Navy with a set of reference points not owned by most of her peers. She obviously sees things differently than she did as a student. "Frankly, I was amazed to discover the many avenues that exist in today's Navy for proper redress of grievances which encourage constructive change.

"People have no right to gripe about situations in the Navy until they have taken advantage of all the resources available to them. Admittedly, it takes some self-initiative to get things rolling. Too many people are inclined to simply lay back and moan about a problem rather than rise to the challenge and do something about it."

What about women in the Navy in general? "I'd like to see the Navy stop coddling and baby-sitting us while attempting to legislate morality! For one thing, it won't work. For another, it's insulting to our intelligence.

"Put us aboard ships, treat us as adults and expect us to act accordingly. I honestly do not see a coed bathroom as the most devastating force on earth. Modern adults have no problem respecting each other's basic need for privacy."

Wrestling is a big sport in Williamsport, Pa. and John Fessler was always athletically inclined. His muscular but small stature ruled out football and basektball, but high school and college wrestling has a weight division covering everyone.

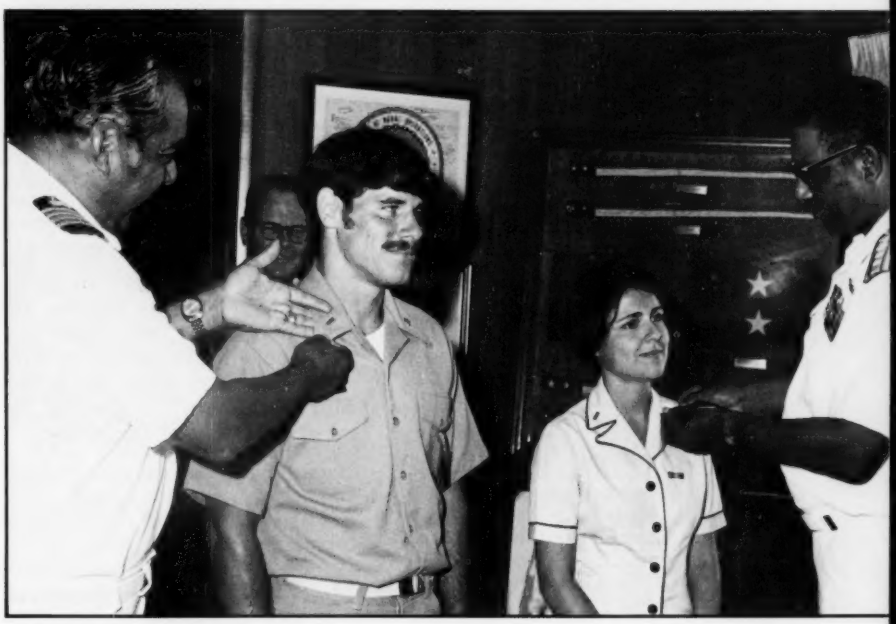
While discovering early promise in math and sciences — the kinds of subjects necessary to future engineers — he also found that similar principles of logic, leverage and applied power were a distinct advantage on a wrestling mat.

By the time he was a senior at Penn State's Behrend Campus, he was simultaneously voted team captain and outstanding wrestler of the year.

John carried his favorite sport into the Navy. On 25 February 1976, John won the West Coast All Navy Wrestling Championships.

The couple look to the future with great anticipation. Now that they have been promoted they both hope to receive billets in the Seattle or San Francisco area. They hope the Navy will send them to post graduate school after they earn the requisite seniority.

The Fesslers agree in unison that the Navy has had a significant and positive impact on their lives. They have every reason to believe that as they continue to increase their value to the Navy, the feeling will be reciprocal.



PASSING THE BARS — To new LTJGs John and Joyce Fessler is RAdm Samuel Gravely. Both were advanced at a joint promotion ceremony.

PWC San Diego

200 Years Before U.S., Was ...

NAS North Island

• San Diego, Calif.

Some 200 years before the signing of the Declaration of Independence in Philadelphia, Juan Rodriguez Cabrillo sailed north from Mexico to explore and protect Spanish claims to the New World.

Sailing into a "closed and very good port," which he named San Miguel (later renamed San Diego), Cabrillo's party raised the Spanish flag, marking the opening of California to European civilization.

It was not, however, until 1846 that the war sloop, *Cyane*, manned by U.S. sailors and marines, entered San Diego harbor, raised the Stars and Stripes, and proclaimed Alta (Upper) California for the United States.

Naval vessels were frequent visitors to San Diego during Spanish colonial times, but it was not until the turn of the century that the Navy acquired land of its own on Point Loma for a coaling station. In 1911, Glenn Curtiss began teaching Naval airmen to fly on North Island. It was here that Curtiss took off and landed the first hydroplane.

As World War I appeared on the horizon, the Navy was given permission to build permanent buildings on North Island and to establish a public works department.

In 1921, the 11th Naval District was established, and within two years the Naval Hospital, the Naval Training Station, the Destroyer Base, and the Naval Supply Depot had been commissioned.

The approach of World War II brought the development of the Naval Electronics Laboratory in 1940, the establishment of NAS Miramar, improvements in the Air Station at North Island, the Naval Amphibious Base and other facilities.

Today, San Diego is one of the largest naval communities in the world, with about 190 shore commands and two-thirds of the Pacific Fleet homeported in the 11th Naval District area.

For many years during the formation of the huge Navy complex in San Diego, public works support was performed as an individual command function, with each major facility relying on a public works department for maintenance, utilities and transportation functions.

Then, on July 1, 1963, the Navy Public Works Center, San Diego, headquartered at the Naval Station, was established as a Navy Command.

The Public Works Center has grown steadily since its inception. Today, conducting a thriving $64 million "business," the Center provides public works services to seven major complexes made up of over 400 "customers" (including 250 ships) within the San Diego area.

The Center provides complete technical public works support, including facilities planning, engineering design, contract administration, maintenance of buildings and grounds, utilities operations and maintenance, technical services to the research and development activities, transportation services, and the administration and maintenance of over 5,600 units of Navy housing in the Eleventh Naval District.

The Naval Amphibious Base, Coronado, public works department merged with the Center in July, 1975, and consolidation of the public works department at NAS North Island with the Center is scheduled for October 1, 1976.

The basic mission and philosophy of the Navy Public Works Center, San Diego, has been, since its inception, to satisfy the public works needs of military commands and activities in the San Diego area as efficiently and economically as possible. And as the Nation's Bicentennial is celebrated, PWC, San Diego's policy continues to be response to customer needs, summed up in the succinct, one-word motto, *"Service."*

Bangor Looks To Future

• Bangor, Wa.

In 1776 the Pacific Northwest was generally unknown. Lewis and Clark, first American explorers of the territory, were only two and six years of age, respectively, at that time.

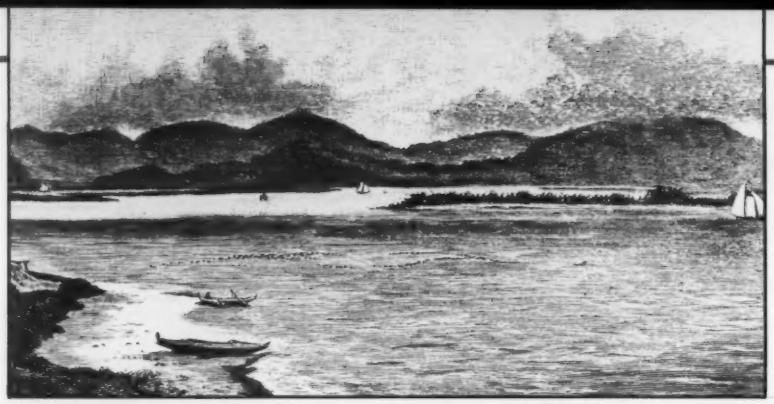
The first homestead on what was to become the Bangor Annex was granted by President Grant in 1875. What is to be the new base at Bangor, to support the new *Trident* submarine, began its military history in 1944 when the land was purchased for the construction of ammunition storage and handling facilities. The facility, Bangor Naval Magazine, was commissioned in August 1945, and in 1947 was redesignated as the U.S. Naval Ammunition Depot (NAD) Bangor.

In July 1950 NAD Bangor was disestablished and the facility became an annex to the Naval Torpedo Station (NTS) at Keyport, Wash. However, two years later it was re-established as a separate command under its former title of NAD, Bangor.

In 1964 the Polaris Missile Facility, Pacific was constructed at Bangor to provide facilities for handling the Polaris missiles.

In 1970 the Naval Ordnance Engineering Facility was also constructed at Bangor. And once again, in 1970, NAD, Bangor was disestablished and Bangor became an annex to NTS, Keyport.

In 1975 the actual construction of facilities for the new SUBASE began at Bangor. Sometime in the near future when the new SUBASE is commissioned, Bangor will again be separated from NTS, Keyport to become a separate command.



HAWAII — Pearl Harbor as it appeared in the 1890s. All pictures this page courtesy of *Bernice P. Bishop Museum*, Honolulu.

Ports Among The Palms

• Makalapa, Hawaii

Even in 1826, the year that the *U.S.S. Dolphin* became the first commissioned U.S. Navy vessel to nose into Honolulu Harbor, it was foreordained that Navy civil engineers would have a prominent role in the nation's Pacific Ocean affairs.

The relationship between engineers and the Navy had grown since 1807 when President Jefferson called on Benjamin Latrobe for advice about construction of dry docks. This plan fell by the wayside, to be revived in 1826, when Congress directed that a "skillful engineer" survey sites for the docks on the east coast.

By that time, it was certain that engineers would be involved in any Navy shore construction, and the relationship burgeoned on the mainland in the following seven decades. But it was not until the late 1890s that the Navy began to build its Hawaiian base. By that time, the Bureau of Yards and Docks and the Civil Engineer Corps had been formalized as Navy organizations. It had become apparent, too, that Hawaii would be a keystone in the Navy's Pacific Ocean assignment.

In 1884, Hawaiian King Kalakaua granted the U.S. permission to establish and maintain a coaling and repair station for its vessels at Pearl Harbor. Hawaii was annexed in 1898, and the Naval Station Honolulu was established.

The first Civil Engineer officer was Capt F. C. Prindle, assigned to NavSta Honolulu in 1901 as the public works officer. He was relieved a year later by Capt U. S. Grant White, whose tour lasted until 1904.

Development was slow. By 1913 a 35-foot entrance had been dredged, but even by 1939 Pearl Harbor was still a modest base, with a couple of drydocks, a few public works shops, a submarine and an aviation base and some administrative offices.

Pearl Harbor's major growth began that year as a result of the Hepburn Board's recommendations for a massive build-up of Pacific island defenses. The contract was assigned to PNAB — Pacific Naval Air Bases, a combine of three major firms (later expanded to five). Adm Ben Moreell, the Chief of the then Bureau of Yards and Docks put Cdr Harry Bruns, the NavSta PWO, in charge of the construction on Hawaii, Midway, Wake, Johnston, Palmyra and Guam.

CEC officers were assigned as ROICCs at each job site. During the early Pacific assaults, the Japanese killed or captured hundreds of the PNAB's crews on the Pacific islands. The work, urgently needed, was completed later by Seabees.

Early in the war BuDocks established a Pacific Division with headquarters in San Francisco and Honolulu to direct operations closely related to combat activities.

Pacific Division

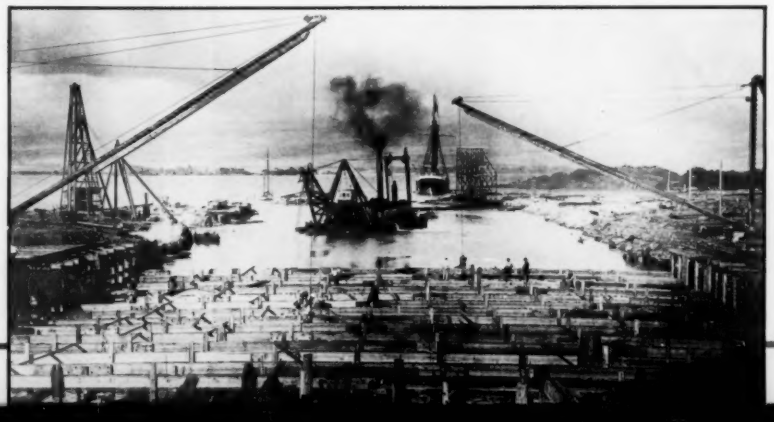
By May 1945, the job was too big for one man to handle, so the Eastern Pacific Division was established, with headquarters in San Francisco and Honolulu, and the Western Pacific Division was established in Guam and Honolulu for work west of Longitude 165 degrees. Division directors also served on the staffs of fleet commanders in their areas. The Pacific Division director also was type commander of Seabees on the staff of Commander, Service Force, Pacific Fleet.

After the war the two divisions again became the Pacific Division, headquartered in San Francisco. In the early 1950s, headquarters were moved back to Pearl Harbor where a small staff provided technical assistance. It was housed in the offices of the District Public Works

Officer, but in 1963 was moved closer to Pacific Fleet headquarters, and staffed with engineers and specialists from the DPWO.

Field operations were conducted through OICCs at Pearl Harbor, Guam, Manila, Bangkok and Yokosuka. Its staff was increased in the 1960s as the U.S. increased its involvement in Southeast Asia. With inception of the gigantic construc-

DRYDOCK — Above right is a scene of drydock construction in 1910. Progress shows in the view (above) taken in 1911. Work was actually started on the drydock in 1909. The drydock is one of few Navy facilities ever to endure an "exorcism." See related story on page 22!



tion contracts in Southeast Asia, the Bangkok office was divided into two field offices — the OICC Vietnam at Saigon, for construction in Vietnam, and the OICC Thailand at Bangkok, to oversee construction in Thailand, Cambodia, and Laos, with which the U.S. also had defense treaties.

Those offices have since been closed. OICC Thailand's responsibilities at the Indian Ocean island of Diego Garcia have been reassigned to OICC Southwest Pacific at Manila.

It provides management assistance and direction for Public Works Centers at Pearl Harbor, Guam, Subic Bay and Yokosuka. In truth, in government construction — or transportation, or utilities, or housing, or planning, or real estate deals — anywhere in the Pacific the Pacific Division is usually the honcho.

PWC Pearl Harbor

The 'Haoles' Are Coming!?

• Pearl Harbor

"The British are coming! The British are coming!"

This cry has gone down in the pages of history as the signal that launched the American colonists into their struggle for freedom.

However, thousands of miles to the west, at about the same time in history, a similar signal given by a Polynesian (probably high from a coconut tree), had a different meaning. The signal marked that, sometime during the Revolution (approximately 1778), the first *"haole"* or foreigner came to what is now the 50th state — Hawaii.

True, the Hawaiian Islands cannot trace its heritage directly back to the 13 colonies, but then, neither can other states joining the Union long after the Revolutionary War.

There are also those who say that this nation was not born in 1776 but rather in 1787, when the founding fathers wrote the Constitution and created the Bill of Rights.

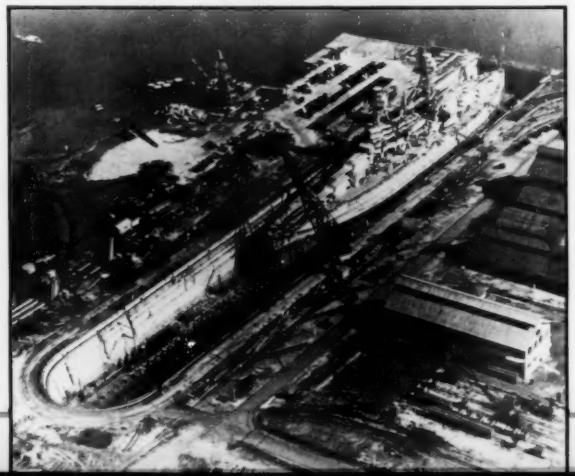
It was only seven years later that America's first military activity in Pearl Harbor — then known as Pearl Lochs or Pearl River — took place. Captain John Kendrick, in command of the merchant ship, *Lady of Washington,* is reported to have assisted the king of the island of Oahu in a victorious battle in the Pearl Harbor area.

In 1840, the first technical work by the United States was done by Commodore Charles Wilkes when King Kamehameha II requested a survey of the harbor.

Later a military commission, sent to Honolulu to inspect the defensive capacity of Oahu, concluded a treaty (1876) which gave the United States certain rights in Pearl Harbor in exchange for admission of duty-free sugar.

The pact was extended in 1887, giving the United States exclusive rights to establish a coaling station for American vessels in Pearl Harbor.

DISASTER — Work on the Pearl Harbor drydock halted abruptly in 1913 when hydraulic pressures caused scaffolding to collapse. The drydock was eventually completed, and one of its more illustrious "customers" was the USS Arizona, below right.



Pearl Harbor. July 8, 1920. Panoramic view of the Yard looking East, showing the U.S.S. "Michigan" & U.S.S. "South Carolina" at 1010 Wharf.

Following Hawaii's annexation in 1898 as a U.S. Territory, the initial attempt was made to cut a deeper channel through the coral reef outside the harbor. The first vessel to enter the harbor was the gunboat *Petrel* in 1903.

The decision to construct a major naval base in the Pacific was made in 1908. Navy engineers surveyed the barren acres of kiawe stubble, burnt sugar cane and coral. The same year, a contract for the dredging of a channel to the harbor was awarded.

Initially, it was assumed that the harbor would be opened to commercial as well as naval vessels. An Executive Order of 1912, however, directed that Pearl Harbor would be a "closed" port.

Misfortune plagued the construction of the first drydock. In February 1913, two years of labor became a mass of wreckage in one fateful minute when the bottom of a crib section failed. After a year's delay, work was resumed and brought to a successful completion in 1919.

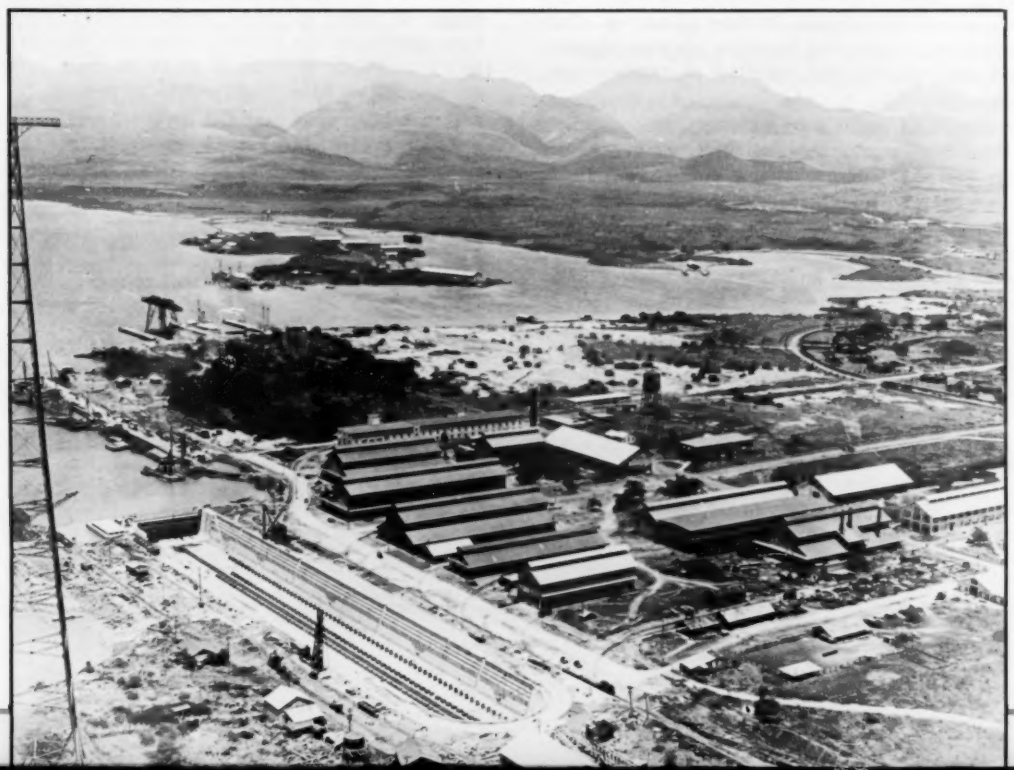
Subsequently, the Navy Yard, Pearl Harbor, grew rapidly. As the yard grew, so did its work force which reached a peak of over 26,000 civilian employees during World War II.

Pearl Harbor was of course, the site of the historic air raid of December 7, 1941 — *"a day that will live in infamy"* — launched at dawn from six Japanese aircraft carriers 200 miles northeast of Oahu. The attack marked the U.S. entry into World War II.

Pearl Harbor today is the home of the world's largest Naval command, both in units and manpower as well as area of responsibility.

From the headquarters complex at Pearl Harbor, the Pacific Fleet command area stretches out to cover 94 million square miles, from the West Coast of North America to the Indian Ocean, from the Arctic to the Antarctic — nearly half the surface of the earth.

SHIPYARD — A rare shot of Pearl Harbor Navy Shipyard in 1919. The shot is rare because it is an aerial shot and aircraft were not too common in Hawaii that early. The "exorcised" drydock is at lower center. Several small ships are visible.



Military Engineering:

Excerpts from Keynote Address to

BY ADMIRAL BEN MOREELL
CEC, USN (RETIRED)

Our theme is "200 Years of Military Engineering; A Foundation for the Future." There could be no more fitting time for appraising the past and laying the groundwork for the future. For our nation is in a period of crisis. There is general awareness that there is a crisis, but major differences as to its nature and magnitude, and what corrective measures should be taken.

I believe that today's military engineer is superbly equipped by education, training and experience to participate in diagnosing the ailment and prescribing effective remedies.

While the term "military engineering" has acquired a distinctive connotation by virtue of long usage, it is sometimes used too restrictively to denote only those engineering works which serve purely military purposes . . . Modern military engineering requires a broad knowledge of all facets of engineering technology, as well as many areas of applied science.

No other branch of engineering makes so many demands on its practitioners. In addition to his purely professional expertise, the military engineer should be proficient in large-scale organizational, administrative and management procedures. In time of war or other major emergency he may well be called upon to organize and direct military and civil activities of great variety, scope and complexity.

The evolution of today's military engineer required great versatility in adapting, to his own uses, the technology and skills of his civilian colleagues as well as those of his professional predecessors, civil and military.

Judging by the record, the military engineers of 1776 would not lay claim to superior technologic and scientific talents. But they were, on the whole, men of great integrity, ingenuity and dedication. They were committed to a high standard of professional performance, a legacy which was handed down to the generations which followed and which serve as a firm foundation for greater material progress in the past 200 years than in all of prior recorded history.

The achievements in engineering and applied science during the period 1776 to 1976 are too numerous to be cited here. . . . The list is almost endless. This has been the golden age of engineering! The military engineer and his civilian colleague have shared indiscriminately in many gigantic achievements!

While Americans do not claim sole credit for the great material progress of this era, it is generally conceded that they played a major role in the discovery, development and/or application of practically all of the innovations . . .

☆☆☆☆

. . . Our people erected a nation dedicated to human freedom; a haven of refuge for the oppressed and a beacon of hope for those who could not escape to our shores; a nation where there was compassion and help for the needy but where opportunity for self-help was held to be of greater importance and was made available in generous measure; a nation where, within the limitations of human error, there was a generally prevailing respect for the personal dignity and natural rights of every individual.

What have we done with this rich heritage? I believe we have squandered our legacy. We have failed to preserve the integrity of this citadel of freedom. We have permitted deterioration of its structure to the point where there is grave danger of collapse!

Over the past half-century we have propagated a misplaced faith in the capacity of . . . central government . . . to achieve any kind of material, economic, social or moral purpose. Implementing this faith we have abdicated our personal responsibilities to God and to our neighbor in favor of an impersonal government, upon which we have thrust enormous powers . . .

It has been said that the people never give up their liberties except under some delusion. We have been surrendering our liberties under the delusion that government has some superior competence in the realm of economics, some magic multiplier of wealth, some easy access to a vast store of economic goods which may be had without working for them, merely by voting for them!

☆☆☆☆

What should be the stance of military engineers in the conflict which now threatens us, the conflict between coercion of the individual, the repression of his

"I have always held that the desirable traits of any organization — loyalty, devotion, energy, persistence, and high morale permeate downward from the top. They do not rise from the bottom."

From *The Admiral's Log II*

"Decisions made under the stress of hysteria are usually wrong."

From an address entitled "Engineers and Engineering Education," delivered on the occasion of Admiral Moreell's receiving the Washington Award for 1958.

Then and Now

The Society of American Military Engineers, 29 April 1976

creative energies by all-powerful and arbitrary government versus freedom of the individual which leads to strength and social progress?

In this conflict engineers have a special responsibility because their training and experience teaches them the importance of fixed principles and immutable laws, and the dangers which flow from ignoring or disobeying them. For example, the engineer knows that in electricity he is dealing with a powerful force which operates according to certain fixed laws. . . . He must know that electricity uncontrolled can destroy and kill, but that controlled and directed according to the laws of nature, it can be made to serve mankind as an infinitely adaptable servant.

The engineer, therefore, is especially qualified to understand and to help others to understand the great fundamental truth which is being largely ignored in human affairs today, that there are similar unchanging laws governing human nature and human relations in life on this planet. The forces of human nature, like those of the physical world, may be either constructive and creative, may be so directed and controlled that they will help to integrate and build a better life; or they can be destructive and disintegrating, even to the extent of destroying the physical as well as the spiritual structures of a great civilization.

Jose Ortega y Gasset, the great modern Spanish philosopher, has pointed out the danger of ignoring these great fundamental moral laws. He said:

"I wish it would dawn upon engineers that, in order to be an engineer, it is not enough to be an engineer. While they are minding their own business, history may be pulling the ground from under their feet.

"People believe modern technology is more firmly established in history than all previous technologies because of its scientific foundations. But this alleged security is illusory.

"Indeed, it is just this feeling of security which is endangering Western civilization. The belief in progress, the conviction that on this level of history a major setback can no longer happen and the world will go the full length of prosperity, has loosened the rivets of human caution and flung open the gates for a new invasion of barbarism."

There is an account of an interview with Albert Speer, the architect and Nazi politican who became Minister of Munitions and Armaments under Hitler. He had just been released at the age of 70, after twenty years imprisonment for war crimes. The account was written by the columnist, Sydney J. Harris, who titled his column "The Perils of A Lopsided Education." Following are some excerpts:

"Speer said that the thing he regretted most was that he grew up with a technical education only, in architecture and engineering. He learned little of the liberal arts and humanities, and nothing of philosophy at all.

" 'It was this lopsided education that made it so easy for many of us to fall under the spell of Naziism,' said Speer. 'We were technical barbarians, who did a fine job, but never inquired about the purpose of the ultimate results of the job. If we had been given a proper education as to the probable moral and social consequences of Naziism,' he said, 'many of us might have taken steps to abort the movement before it took full power.' "

Mr. Harris commented: "The Germans were the most educated nation in the world, in the narrow sense of scholarship and technical skills, but this was not translated by their academic system into ethical or philosophic terms. Too many talented men like Speer grew up innocent of the moral truths and social options it took him twenty years in prison to recognize."

Is there a way ahead which will take us out of this morass which threatens to ensnare us? Is there a way to recover the sanity and balance which once marked our life? I am sure there is, if we are willing to pay the price. But it is not by resort to political legerdemain. It is by beating our way upstream, against the swift-running current, to restore those moral and spiritual values upon which this nation was built.

☆☆☆☆

The most fitting reward for a task well done is to be assigned to a more important task. The military engineer has acquitted himself with great distinction during our first 200 years, and he has built the solid foundation for a far greater achievement in the years which lie ahead! . . .

We live in an era of crisis. In such times the genius of our people is to rise above their differences and to unite their strengths to serve the common good.

Let us face the future with determination, confidence and, above all, faith in God and in each other.

More than 700 years ago the great Italian poet, Dante, wrote: "The hottest places in hell are reserved for those who, in a period of moral crisis, maintain their neutrality."

"Money and machines become sterile and unproductive without the right kind of men to use them."

From an address entitled "Of Bread and Circuses," delivered to The National Association of Purchasing Agents at Houston, Texas 5 October 1955.

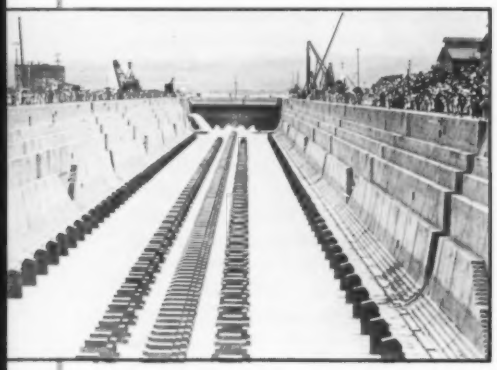
". . . before the individual can attain the maximum development of which he is capable at any given time he must be *free* to direct his own creative energy."

From an address entitled "The Role of American Business in Social Progress," delivered to The Indiana State Chamber of Commerce at Indianapolis, Indiana, 7 December 1955.

OICC Mid-Pacific

The First Naval 'Exorcise'

BEFORE AND AFTER — The jumble of lumber is all that remains after the "shark goddess" zapped Drydock project. A 'Kahuna' performed an exorcism ritual to appease Ka'ahupahau and the drydock was completed. Below are opening ceremonies Aug. 21, 1919.



• Pearl Harbor, Hawaii

THE SHARK GODDESS AND THE DRYDOCK. The actual construction of a drydock at Pearl Harbor commenced in October 1909. Work was nearing completion in 1913 when trouble was experienced with the bottom rising because of intense hydraulic pressure. On February 17, 1913 the situation became so abnormal that the workmen were ordered out. That afternoon the drydock literally exploded and years of work were destroyed. Legend has it that superstitious Hawaiians had claimed that Pearl Harbor was sacred to the shark goddess, Ka'ahupahau, and was the reason for the drydock's destruction. At the suggestion of the governor, a Hawaiian Kahuna (priest) performed a ritual to appease the goddess. The drydock was completed in 1919 without further incident. Legend — yes, but the custom of a Hawaiian blessing still continues in Hawaii.

The District Public Works Office, Fourteenth Naval District, had its origins in 1901 as the Public Works Department of the Fourteenth Naval District. The assignment of a Civil Engineer Corps officer as public works officer to the Naval Station was to plan and construct the Pearl Harbor Navy Yard. The DPWO 14ND was also PWO of the Naval Shipyard. Thus, he held two separate and distinct positions. In one capacity, he was directly responsible to the Commandant through the Chief of Staff for all construction in the district. As PWO for the shipyard, he was responsible to the industrial manager. This delineation of authority often resulted in differences between the DPWO and the industrial manager over construction work and methods of accomplishment.

However, in 1941, as a direct result of the tremendous expansion of the construction program and the added responsibilities of the DPWO, a CEC officer was ordered to duty as PWO of the shipyard. Initially the DPWO did not have administrative jurisdiction over the shipyard PWO and confusion of authority continued for some time.

Prior to 1939 all construction in the district, except that done by public work forces, was done by private contractors under lump sum contracts. With the great need for expansion, this type of contract was supplemented by cost-plus-fixed fee contracts. The entire construction program under the cost-plus-fixed fee contracts was performed under the direction of the DPWO 14ND as officer-in-charge-of-construction. In this capacity he operated independently of the commandant as the direct representative of the Bureau of Yards and Docks (now Naval Facilities Engineering Command). The scope of his authority extended beyond the confines of the Fourteenth Naval District.

At the beginning of World War II, the DPWO 14ND was responsible for all construction in the Central Pacific which included Wake, Guam, Midway, Kwajalein, Palmyra and other islands. However in July 1945, the Pacific Division of Bureau of Yards and Docks was formed and that activity took over nearly all construction outside the Fourteenth Naval District.

The DPWO 14ND was reorganized in September 1948 as a separate activity to centralize responsibility and management of BUDOCKS technical programs and to clearly define the relationship of the DPWO to the commandant.

The DPWO reported to the commandant for military control

FIRST — The building at right is the first built for the navy in Hawaii. Near the waterfront coal depot, it originally housed the commandant and his staff. (Photo courtesy Bernice P. Bishop Museum).

and coordination and to BUDOCKS for management and technical control. Concurrently a staff billet for engineering matters reporting directly to the commandant was established as District Civil Engineer.

This billet functioned independently of the DPWO until 1954 when the district civil engineer function was assigned to the DPWO as additional duty.

The DPWO 14ND was redesignated as the Officer in Charge of Construction, Naval Facilities Engineering Command Contracts, Mid Pacific, on 1 July 1965. The present incumbent is Capt K. D. Brooks, who also has additional duty as District Civil Engineer, Fourteenth Naval District. The OICC MIDPAC currently has eight officers and a ceiling of 66 civilians.

Throughout the past 75 years, many distinguished CEC officers have served as DPWOs and OICCs. Perhaps the most distinguished of these were Admirals Ben Moreell and E. J. Peltier, both of whom became Chief of Engineers and Commander, Bureau of Yards and Docks.

IDYLLIC — Pearl Harbor as it appeared in 1910. Navy presence in the Islands then was small, but would eventually grow to massive proportions.

PWC Subic Bay

Philippine Public Works

• Subic Bay, R of P

The U.S. Naval Base of which the Public Works Center, Subic Bay, is part, was officially established in 1904 to support the U.S. Asiatic Fleet.

Following the outbreak of the Spanish-American War and the opening of hostilities in the Philippines between the American and Spanish fleets in 1899, the port was occupied by the U.S. Navy.

Admiral George Dewey, who emerged victorious over the Spanish Fleet in the Battle of Manila Bay, endorsed Subic Bay when the question of location for a U.S. Naval Base in the Philippines came up.

He maintained, over the objection of Army Colonel Leonard Wood, that Subic had "no equal in the Philippine Islands because it commanded the trade routes between Manila and Asia and because it was easily defensible by land and sea."

In February 1945, 41 years after the establishment of the base, a public works department was formed under the U.S. Naval Base. The department, with a total complement of 147 military and civilian personnel and an annual budget of $350,000, served all activities in the Subic Bay area.

When the department was commissioned a Public Works Center on July 1, 1955, as a result of the growth of the Naval Complex, it had a complement of five officers and 1,082 civilian employees and an annual budget of about $3.5 million. The newly established PWC performed most public works functions, except transportation, for all activities in Subic Bay. The Naval Air Station, Cubi Point, had its own public works department and the Naval Communication Station at San Miguel was served by other support.

Later, the Secretary of the Navy directed that all public works functions in the Naval Base complex be consolidated under the Public Works Center. And so the consolidation commenced and was completed on January 2, 1961. Important functions taken over by the center subsequent to 1961 include the maintenance and repair of material handling equipment of the Naval Supply Depot; the maintenance and operation of the telephone system at Sangley Point (disestablished June 1971); the cargo and ammunition handling operation at the Naval Magazine; and the automotive rental fleet at Special Services.

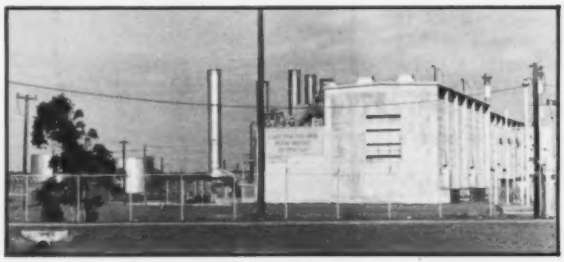
PWC/Subic is the largest Public Works Center in the Navy. At present PWC/Subic has a complement of 12 officers, more than 3,500 Filipino civilian employees and 62 U.S. civilian employees. It serves and provides public works support to all activities in the Subic area and visiting fleet units, and off-island activities such as Diego Garcia and Midway as requested.

The major activities now being served are the Naval Air Station, Naval Supply Depot, Naval Station, Naval Magazine, Naval Hospital, Ship Repair Facility, and Naval Communication Station (San Miguel and Capas, Tarlac).

In connection with these tasks, the Center operates over an extensive geographical area including Capas, Tarlac (which is 74 miles from Subic Bay); San Miguel; Mount Santa Rita, and Grande Island.

Spanish Naval Station

Subic's Spanish Gate



Power, old and new — Above is the present power plant at Agana, Guam, and right is the plant as it looked before WW2, next to an ancient Spanish bridge.

PWC Guam

Isle of Thieves

When Magellan discovered Guam in 1523, the Spanish crew helped themselves to the abundant food, water and anything else that appealed to them. After a week of that, they raised sail to depart and discovered that the native Chamorros, emulating their example, had helped themselves to the Spanish lifeboats. Furious, Magellan dubbed the island "Isla de los Ladrones" — Isle of Thieves.

It was not until 100 years later that Guam and the other islands in the group were re-named the Marianas Islands. After the Spanish-American War, Guam was separated politically from the others and ceded to the United States.

The first Navy Public Works organization on Guam was established in 1900, with the Marine detachment commander as head. The staff consisted of a former Spanish captain as inspector; a Navy lieutenant; a warrant machinist and a Chamorro worker.

In the ensuing years, individual activity public works departments were formed at major naval installations. These PWDs were involved in building highways, utilities systems and a hospital as well as developing Apra Bay from limited use to a major harbor. Navy management was interrupted by the Japanese invasion in 1941 but was resumed in 1944.

In 1949, the U.S. Navy Public Works Center (PWC) was established with the responsibility of maintaining all naval facilities and producing island-wide utilities. Since then, the Government of Guam has assumed responsibility for producing almost all non-Navy utilities. The work force at PWC Guam includes 12 officers and about 1,200 permanent civilians.

PWC Guam is unique in that above and beyond the normal task of a public works center, it has been called upon to perform prodigious tasks. The building of highway, utilities and communications systems following World War II; the restoration in the wake of devastating typhoons; and the construction of a tent city for 50,000 people during the Vietnamese withdrawal are among the accomplishments. Additional services to the Federal Aviation Administration, the Trust Territories of Micronesia, other federal agencies, and the civilian community in times of disaster are also rendered by the PWC/Guam.

OICC Southwest Pacific

200 Years of Revolutions

• Manila, R of P

The eighteenth century witnessed a period of numerous revolts in the Philippine Islands, an arena of serious insurrections against Spain, as the Filipinos tried to free themselves from foreign rule.

The longest revolt was that in the island of Bohol, which smoldered for over half-a-century. It was sparked in 1776, when Father Gaspar Morales, a Spanish priest, ordered a Filipino constable to capture a man who had abandoned his Christian faith. The constable pursued the fugitive, the the latter resisted and killed him.

The constable's corpse was brought to town, but Father Morales refused to give it a Christian burial because he had died in a duel and this was banned by the church. The constable's brother, Francisco Dagonoy rallied over 3,000 followers who joined his "government in exile" in the nearby mountains.

It took 53 years, 20 Spanish Governors-General, innumerable engagements and, finally, offers of peace and pardon before the 20,000 descendants of Dagonoy's army agreed to lay down arms and to accept resettlement on the plains.

Subic Bay, which is located in the Zambales and Bataan provinces of the Republic of the Philippines, (about 6,900 miles southwest of San Francisco and 4,800 miles from Pearl Harbor) was officially selected by Spain as her main naval base in the Far East by a royal decree in 1884. Construction of the naval station at Subic was authorized on 8 March 1885, by the Spanish naval commission.

The year 1898 saw the outbreak of the Spanish-American war and the opening of hostilities in the Philippines between the American and Spanish fleets. These hostilities were not terminated until 1901. At that time the United States began a survey of its conquered prize. With regard to military installations, the U.S. found an "ill-equipped yard at Cavite and an unfinished station at Subic Bay."

The United States was especially interested at this time in obtaining a deep water harbor in the Far East

for purposes of ship repair and replenishment. During the early 1900s the United States maintained a large fleet in Asiatic waters and found that Puget Sound and San Francisco harbors were the nearest U.S.-owned repair bases available to the fleet. Thus, Subic Bay's mission was decided. Construction of the base was slowed by lack of appropriations from the Congress, but the base was finally established in 1904 to support the U.S. Asiatic Fleet.

During World War II, the Japanese occupied the Subic area, and in 1942 established a garrison to construct wooden auxiliary vessels. These were destroyed by U.S. forces in 1944 before completion. U.S. troops secured Grande Island in the Bay without resistance in January 1945.

The post-war U.S. Naval Station, Subic Bay, was established in February 1945. On 1 October 1954 the U.S. Naval Base, Subic Bay, was established. In accordance with DOD policy for assigning single construction agents in the designated areas worldwide, the Naval Facilities Engineering Command established the Officer In Charge of Construction, Southwest Pacific (OICCSWP) in February 1952 to carry out these responsibilities, with its main mission of performing all military construction for the U.S. Armed Forces in the Philippines.

The OICCSWP was initially located at the U.S. Naval Base in Subic Bay. However, in July 1965, the OICC headquarters opened the doors to its new offices in the heart of Manila's business district, in the Makati area, to effect much closer liaison with the bulk of the contractors with whom OICCSWP does business. The OICCSWP staffing is adjusted to meet workload. The present staff comprises seven officers of the Civil Engineer Corps, headed by Capt J. M. Weis, CEC, USN with 15 U.S. Civil Service civilians and 106 Philippine nationals. Of the total assigned about half of them are engineers. The staff is organized by specialties, including engineering, contracts, construction, administration, and program management. In the field, Resident Officers in Charge of Construction administer the on-site construction.

Today, Naval Base, Subic Bay, employs over 16,000 "direct hire" Filipinos and has approximately 7,000 U.S. military and civilian personnel carrying on a seven day-week, 24-hour-day operation.

The OICCSWP, together with eight major commands and the more than 35 smaller units and detachments, continue to provide support to the operating units of the Seventh Fleet. The U.S. Naval Base at Subic Bay is today the U.S. Navy's largest logistical support base in the Western Pacific.

PWC Yokosuka

A Slow-Growing Friendship

• Yokosuka, Japan

1776. Japan.

Yokosuka was a small fishermen's village under the control of the *Miura* family. Forty miles to the north lay Edo Castle, now present-day Tokyo. In 1776 though, Edo was the capital of the *Tokugawa* Shogunate, which had ruled Japan with awesome power for nearly 200 years and would continue to do so into the mid-19th century.

A feudal land, Japan was at peace in 1776. With the sole exception of limited trade with the Dutch and Portuguese at Nagasaki, far to the south on the island of Kyushu, the country was in deep isolation from the western world.

Japan's contact with the United States began in the early 1800's. In 1803, when the United States doubled in size with the Louisiana Purchase, an American ship called at Nagasaki and was rejected when it asked for trade.

In 1837, at the time of the independent Texas Republic, an American ship came to the port of Uraga, approximately 5 miles south of Yokosuka. The ship requested trade, and the Tokugawa Magistrates replied with cannon fire.

In 1841, shortly after the election of William H. Harrison, the first Whig President of the United States, an American whaler rescued five ship-wrecked Japanese sailors from Torishima Island, approximately 750 miles northeast of Guam. Nakahama John Manjiro, a fourteen year old fisherman, was among those rescued. He was befriended by the ship captain, William H. Whitefield, and taken to the United States, thus becoming the first Japanese to be educated in America.

After rising to first officer of a whaling schooner ten years later, Manjiro returned to Japan, teaching navigation and English to the feudal *Tosa* clan. In 1853 he was called to Edo to provide assistance to the Tokugawa Shogunate when Commodore Perry and his famous Black Ship Expedition called at Uraga to demand that Japan normalize relations with the West.

The first CEC/Seabee contact with the Yokosuka area came on VJ Day, 14 August 1945. On that day, 16 officers and 541 men of Naval Construction Battalion 136 embarked on 12 medium landing ships at Guam; reported at Iwo Jima on 21 August, and arrived at Yokosuka Naval Base on 30 August, where they began construction and repair.

Captain T. Akabane, a CEC-type officer in the Japanese Imperial Navy, and later to become General Manager of Officer in Charge of Construction, Far East (OICC-FE) for 10 years, was one of those witnessing the landings:

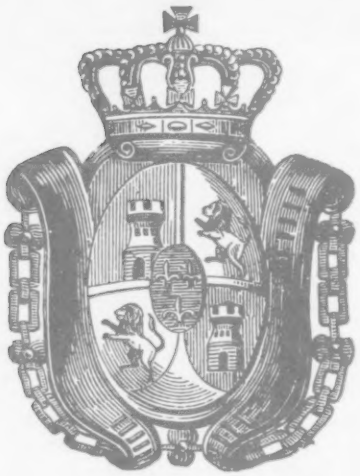
> " The greatest event which had never happened before in the history of Japan took place in the afternoon of 30 August 1945. Scores of U.S. landing boats with thousands of Marines under the cover of as many fighters rushed towards the Base and landed at "Recreation Bay." Standing at the windows of the transient office, all of us watched the landing operations. It was so magnificent a display that I was lost in admiration for a while. Indeed, no one would have hesitated clapping hands if it had been a pageant. No one betrayed even a word and only watched it in thrilling suspense.
>
> Around 4 o'clock in the evening, we noticed that the 'Stars and Stripes' were quickly hoisted on the flagpole of Bldg. C-1 (presently COMNAVFORJAPAN spaces) where the 'Rising Sun' had normally been flying. The 'Stars and Stripes' flapped in the light of the evening sun as if it demonstrated the big victory. It was at this time when the feeling of being defeated keenly came to our mind."

Nevertheless, Captain Akabane became a representative of the rapport which eventually developed between the Japanese and American people at Yokosuka.

During his 19 year tenure at PWC/OICC-FE, he and thousands of others were, and still are, instrumental to the continued success of Naval Facilities Engineering Command operation in Japan.

OICC Spain

Yanqui, Si; Inglaterra, No



• Rota, Spain

Although generally unknown by a great number of Americans, Spain entered the War of Independence on the side of the American colonists in their struggle against the British.

This was partially the result of French pressure and also to satisfy the Spanish main objective of recapturing the Rock of Gibraltar. The 'rock' was besieged by land and sea in 1779, indirectly keeping part of the British fleet away from American shores. The land blockade was quite effective and the impregnable rocky bastion could have fallen. However, it did not because British Admiral George B. Rodney broke the maritime blockade in 1780 and replenished the beleaguered fortress with supplies.

With the Treaty of Paris in 1783, which marked the end of the War of Independence, Spain regained Florida as well as the Island of Menorca and Louisiana was confirmed as a colony of Spain.

The Spanish — America Defense Agreement became effective on September 26, 1953, allowing the establishment of U.S. bases on Spanish soil.

The activities at El Ferrol and Cartagena and the Rota complex were constructed for the Navy while those of Moron, Torrejon and Zaragoza (including a 485 mile pipeline from Rota) were built for the Air Force.

The development plans for the Spanish bases were prepared by four U.S. architect-engineer firms.

The Rota Complex, Cartagena and El Ferrol was a $110 million construction program which began in April 1955. The prime contractor was BRW (Brown-Raymond-Walsh) in coordination with several Spanish and American subcontractors. The organization to conduct the supervision of this vast construction was the beginning of what today is the Officer-In-Charge-of Construction (OICC) Spain.

Rota today is a strategic Naval Base constructed at the northern end of the Bay of Cadiz, facing the 4,000 year old city of Cadiz.

Not far from it was fought the Battle of Trafalgar between the British fleet under Lord Nelson (who died in this battle) and the combined French-Spanish Fleet.

The main importance of the Rota Naval Station is that it is about 60 air miles from the strategic Strait of Gibraltar and within easy reach of both the eastern Atlantic and Mediterranean areas. Rota, which is a joint Spanish-U.S. installation of approximately 6,100 acres employs nearly 7,000. It includes a fuel pier and fuel storage facilities and provides services and material support to operate and maintain naval ships and submarines.

OICC/Spain acts as the construction agent for the Department of Defense both in Spain and Morocco. In this role OICC/Spain carries all of the normal OICC functions for all U.S. forces. This applies to all design and construction requested by the Air Force and Army.

Throughout the remainder of Europe, OICC/Spain acts as a liaison office for Navy activities with the DOD construction agent.

The Air Force has construction agent responsibilities for the United Kingdom, while the Army has the responsibility for the remainder of Europe. This liaison function, plus the OICC functions for U.S. construction work of non-military nature, provides an extensive workload for OICC/Spain. The area of responsibility ranges from Scotland to the Persian Gulf and south to Ethiopia and east to the tiny Mahe Islands lost in the immensity of the Indian Ocean.

Symbols — At upper left is the Spanish royal crest, center is a stylized American crest, and at right, symbolizing Spain's religious heritage is a scene from a Holy Thursday procession in Seville.

Modern Times — Current head of NAVFAC is RAdm Albert Marschall who is responsible for a staggering array of Navy shore facilities. The only staff corps officer ever to make full Admiral was Ben Moreell, pictured at right. When the above shot was taken, Moreell was a Rear Admiral and chief of BuDocks and during this period founded the Seabees.

(Continued from page 5)

its peak wartime staffing of 1,938 in June 1944. Contraction began after this date in anticipation of the war's end.

Without doubt the Second World War presented the bureau with the greatest challenge it had ever faced. To give some idea of the magnitude of the task one need only to look at the figures. The value of the naval shore establishment in 1939 was estimated at less than half a billion dollars while by 1945 it was estimated to be worth between six and a half and eleven billion dollars. All this new construction was carried out under the cognizance of the bureau.

Following the war, events took their usual course and massive reductions in manpower and funding ensued. Despite these reductions, the bureau was faced with maintaining a vastly larger shore establishment than had existed before the war. During these lean years, the emphasis switched from construction to maintenance.

In 1947 the bureau underwent another reorganization which fortunately was completed before the Korean War broke out. Workload once again increased to meet the demands of the new conflict and once again the bureau successfully met the challenge.

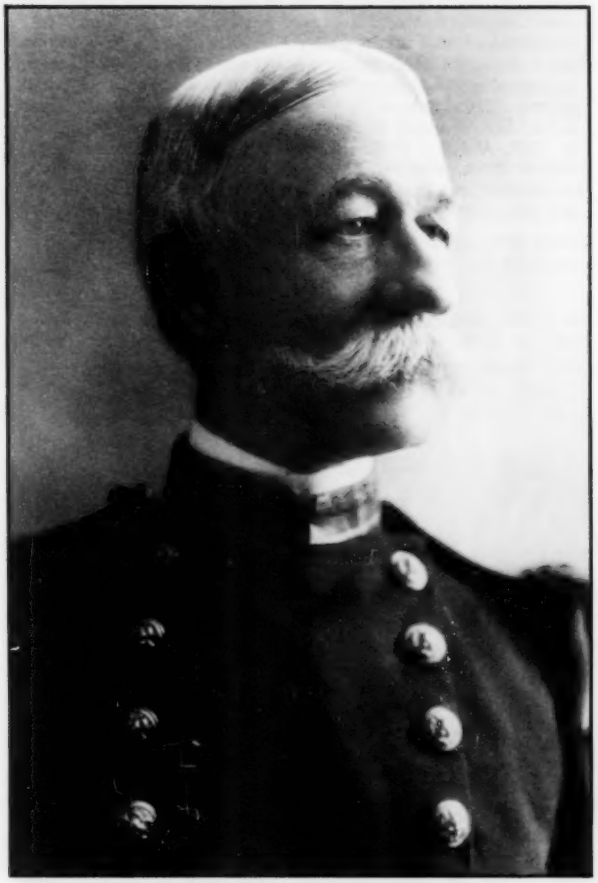
After the war the bureau carried out additional organizational changes which further increased its capability to efficiently execute its mission. During the following decade the bureau continued to carry out its responsibilities, both in old areas of operation and in new fields opened by the rapid technological advances that characterized this period.

On 1 May 1966, the bureau changed its name again. Henceforward, the bureau was to be known as the Naval Facilities Engineering Command. The new name was a by-product of the Navy's change from a bilinear to a unilinear system of organization. The new system subordinated the Chief of Naval Material (who was responsible for the bureaus) to the Chief of Naval Operations. Under the new organization several of the old bureaus, including the Bureau of Yards and Docks, were redesignated as "systems commands."

This reorganization was carried out just as the United States was beginning to get deeply involved in yet a new war. Although the Vietnamese war was not of the same magnitude as the Second World War it still saw an unprecedented amount of construction go into place in Southeast Asia. In fact, this conflict has often been called "a construction war."

The Naval Facilities Engineering Command was designated contract construction agent for all Southeast Asia and thus was responsible for nearly all the construction. This included not only Navy construction, but for the Army, Air Force and other government agencies in Southeast Asia. In all, some $1,770,969,000 worth of construction went into Vietnam alone under the Military Construction Program.

The end of United States participation in the Vietnamese conflict in 1973 brought the usual funding cutbacks, but the command tightened its belt and persevered. By 1976, the situation had stabilized and the command was once again carrying out its normal peacetime mission of maintaining the Navy's shore establishment. But by the 1970s that mission included far more than just the construction and maintenance of Navy shore facilities. Today, the command is also deeply involved in areas of wide interest outside the Navy community — such as deep-ocean research, environmental protection and energy conservation.



Portraits of the past

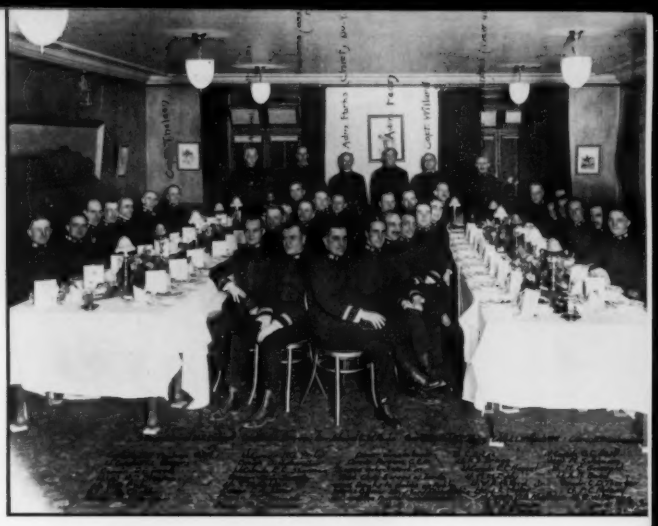
Hail to the Chiefs — Gathered under their formal Navy portraits are six former Chiefs of BuDocks — and one Assistant Chief. They are from left, Homer R. Stanford; Frederic R. Harris; R. E. Bakenhus, Assistant Chief under C. W. Parks — whose portrait appears on the wall; Ben Moreell; front center; L. E. Gregory, A. L. Parsons; and Norman M. Smith. **Left** is a portrait of RAdm Mordecai Endicott, Chief of Navy Civil Engineers from 1898 to 1907. Adm. Endicott also appears in the historical photo on pages 32-33. **Below** is the Yards and Docks Annex of the then newly renamed Naval Facilities Engineering Command.

Portraits of the past

Historical Monstrosity — This ornate old edifice once housed the State Department, War Department, Interior Department, and Navy Department. It now serves as the Executive Office Building and is barely a stone's throw from the White House, a portion of which appears at right. **Below** are five early CEC officers in a group portrait taken in 1870. Center in the group is W.P.S. Sanger, the first officer in the CEC. He began service the day after the Corps was created in 1867. At left is B. F. Chandler, the second officer assigned. Number three, Charles Hastings, is at right. Standing at right is .A. Stratton, number four; and standing at left is F. C. Prindle, youngest of the group at 28, and the tenth CEC officer.

Above

Home — This building was home to the Navy for many years. It is the Main Navy Building in Washington, D.C., shown here during WWI. The building was torn down a few years ago and replaced by the mall into which in encroached when it was built as a "temporary" structure during WWI. Visible in the background is the spire of the Washington Monument.



A 1918 dinner party...

...revisited

By Rear Admiral LEWIS B. COMBS
CEC, USN (Ret)
Former Deputy Chief
Bureau of Yards and Docks

The photograph is of the dinner party given in the latter part of November 1918 at the Army and Navy Club, Washington, D.C., honoring Comdr. A. L. Parsons, CEC, USN. He was being detached as Ass't. Chief of the Bureau of Yards and Docks and Civil Engineers, U.S. Navy, and proceeding to Philadelphia as Public Works Officer of the Navy Yard and the Fourth Naval District.

The party had a further significance, as it helped to celebrate the armistice ending World War I, which had been signed a few days earlier. Some of us remember, and I guess were then young and naive enough to believe, the slogan cry, "The war to make the world safe for democracy."

It was nearly 58 years ago, a long time, but I do have some rather vivid recollections of it. I can't recall the menu, but it must have been good, they always were at the A. & N. Club. Incidentally, I became a member of the club in 1918 and have remained a member for the same 58 years.

The old stand-up collar uniform was much in evidence, but was changed to the new double-breasted jacket the following year which was, I think, welcomed by all. However, it left no place to show a corps insignia, which was designated at that time by the light blue velvet between the gold stripes on the sleeve. Several years later (1922) the colors were abolished and the corps insignia went on the sleeves as it is today.

As I recall there were a few officers present from out of town (Norfolk and Philadelphia), but the majority were on duty at the Bureau, the Washington Navy Yard (then known as the Naval Gun Factory) and Annapolis.

There were four officers present who were commissioned with me in the class of December 1917 — C. H. Cotter, W. H. Pollard, F. C. Nyland G. N. Horsley. We had finished an indoctrination period at the Naval Academy and were on our first duty. Cotter and I were at the Navy Yard, the others were at the Bureau. Horsley resigned soon after the war, but the rest of us continued for a full career in the Corps. They have since passed on. As a matter of fact, I believe that all of the regular CEC officers at that dinner who continued for a career have now passed on.

However, Lt. Comdr. Kirby Smith, a graduate of the Naval Academy (1906) and R.P.I. (1910), resigned after the war in 1920, but returned to active duty as a reserve in 1940 and then retired as a Rear Admiral, CEC, USNR, in 1946. He was born in 1883 and at 93 years, was the oldest living CEC officer until his death on July 26. Many of the officers were reserves, and I had previously met most of them.

Lt. Comdr. Scott, a reserve officer, was the PWO at the Navy Yard to whom Cotter and I reported. One reason why there were so many officers then attached to the Bureau was the now demolished Army and Navy buildings along Constitution Ave. were then under construction and the Navy Yard was being expanded east and west to double its previous area and capacity.

Having been commissioned and on duty for only about a year, I was duly impressed by the senior officers at the head table. Rear Admiral Endicott, Rear Admiral Parks, Rear Admiral Peary and Capt. Willard, who was acting commandant of the Navy Yard.

The historical records of the Corps tell of the very distinguished career of Adm. Endicott. He was the first CEC officer to be appointed Chief of BuDocks and Chief of Civil Engineers. He had been a member of the board which studied and reported upon the proposed construction of an isthmian canal. He was

Rear Admiral M. T. Endicott, Comdr. A. L. Parsons, Rear Admiral C. W. Parks, Rea

Captain D. E. Thalean, USN
Lt. Comdr. H. L. Rogers
Comdr. D. L. Reed
Lt. (jg) R. H. Stearns
Lt. H. G. Roby
Lt. L. B. Combs
Ensign E. S. Fanglon

Lt. Comdr. H. G. Taylor
Ensign O. Rothmaler
Lt. Comdr. E. C. Sherman
Ensign G. C. Sassler
Lt. C. H. Cotter
Ensign E. A. Abeel
Ensign R. E. Hancock
Ensign E. C. Goodwin

Dinner given in ho
Comdr. Parsons, C
upon detachment
Asst. Chief, Bureau o
and Docks to duties a
Works Officer, Navy Yard
Pa. and the Fourth Nava
1918
Washington, D.

, Rear Admiral R. E. Peary, Capt. A. L. Willard, USN, Comdr. R. E. Bakenhus.

in honor
ns, C.E.C.
ment as
eau of Yards
ties as Public
Yard Philadelphia
Naval District
8
n, D.C.

Lt. C. A. Lee
Lt. K. B. Bragg
Lt. Comdr. E. C. Nugent
Lt. H. M. Eddy
Lt. W. A. Pollard, Jr.
Lt. J. A. Myler
Lt. Comdr. O. A. Machlin
Lt. H. D. Rouzer
Lt. R. R. Yates

Lt. Comdr. G. C. Scott
Lt. (jg) H. S. Johnson
Lt. H. C. Griswald
Lt. A. H. Bond
Comdr. C. D. Thurber
Lt. F. C. Nyland
Lt. G. W. Horsley
Lt. Comdr. Kirby Smith
Lt. Comdr. F. W. Southworth
Ensign J. Glander, Jr.

also the only CEC officer to have ever been president of the American Society of Civil Engineers (1911). He had retired from active duty in 1908, but returned to active duty during World War I. He was the senior member of the examining board when I was commissioned. I was also proud of the fact that he was an alumnus of Rensselaer Polytechnic Institute (R.P.I.) class of 1868, my own alma mater. Adm. Parks, the Chief, was master of ceremonies for the party and was also a very distinguished alumnus of R.P.I. of 1884.

Adm. Endicott gave a brief but most interesting talk concerning the early days of the Corps, but probably the most impressive feature of this affair was the presence of RAdm Robert E. Peary, CEC, USN, and especially because of the fact that he was an officer of our Corps. I had read a great deal about him and his achievements. He was a fine speaker and to listen to him relate some of the hardships and experiences in the Arctic and particularly the realization of his dream to reach the North Pole and to hear his assessment of the future for Civil Engineers of the Navy, was a real thrill and one which I have never forgotten.

A little over a year after that party Adm. Peary died at the age of 64 on Feb. 20, 1920, his strenuous life had taken its toll. Some time later I read an address, which Adm. Peary had delivered before the American Academy of Political and Social Sciences in Philadelphia, in July 1916 entitled "Command of the Air." So much of it has proven to be true prophecy and I think back to that night when I listened to him and I think "What a man of determination and vision!"

The party ended with a fine thank-you speech by Comdr. Parsons. He briefly outlined some of the major projects accomplished during his tenure as Ass't. Chief and projected as a result of WWI, all of which was of very great interest to us youngsters. Comdr. Parsons went on to a very distinguished career of his own, becoming RAdm and Chief in 1929, retiring at the end of his four year term in 1933. It was my very good fortune to later serve under him in the Republic of Haiti when he was engineer in chief and also at the New York Navy Yard when he was the public works officer.

Pictorial records, such as this one, may not have too much historical value, but they do stir up a lot of nostalgic memories, which is very good for us old timers.

ABOUT THE PHOTOGRAPH

An original print of the photograph described by Rear Admiral Combs was initially sent to **The Navy Civil Engineer** *by the late Captain Robert E. Hancock, CEC, USN, of Jacksonville, Fla. Regrettably, Captain Hancock's death preceded an appropriate edition for publication. RAdm Combs appears in the photo, second from right (seated) and the donor, Captain Hancock, directly across the dining table. The original photograph, together with the actual printing plates of the text will be presented to the CEC / Seabee Museum.*

— The Editor

Construction Battalion Center

A Seabee city .....at a quiet resting place

• Port Hueneme, Calif.

Had the *Chumash(an)* Indians, original residents of the coastal plains facing the Santa Barbara Channel, foreseen the events to come, they probably would never have referred to the area as *Hueneme*, loosely translated as "the quiet resting place."

And they would have prevented the gross mispronunciations that followed through the centuries and still baffles the newcomer. Perhaps, it was their only revenge, in that the Chumash exposure to the European explorer quickly led to extinction. The Indians were a friendly lot and greeted the Spanish vanguards in about 1776 with food and water and pleasantries of life. Their open welcome was returned with disease, near enslavement and an imposition of life standards thought "best for them."

The Chumash could have cared less for organization in that their particular choice was to remain free and irresponsible. (The Chumash were the original beachcombers, literally and philosophically, of Southern California.)

But organization did come to the area with the establishment of the Mission of San Buenaventura in 1782 by Father Junipero Serra, whose chain of similar religious communities became the vertebrae for California colonization. The Christian motives behind the mission system soon were eroded by Spanish opportunists and bureaucrats much the same as is witnessed in other institutions during the contemporary time.

It wasn't long until the Chumash checked out of the California scene. Their paradise had been totally disrupted and they were not adaptive to the new refinements. By the mid-19th century the Chumash weren't, leaving pitifully few memorials of their existence. Among them were relics of their one art, basket weaving, (they were expert clammers) and a scattering of their place names including that of Hueneme.

The Chumash resting place remained relatively dormant during the subsequent settlement of California by Spanish, Mexicans and later, Americans. The fertile fields of the coastal plain did, as they continue to do so today, produce true cornucopia. And the sub-surface of the area proved just as rich, in fact richer, with oil.

The nation's centennial celebration saw the resting place no longer tenanted by Chumash, Spanish missionaries or native Californian ranchos but held in part by a unique developer whose imaginative efforts in oil exploration, transportation and real estate led to the establishment of the Port of Hueneme (actually an extended wharf with unusual wave tranquility) and other developments that have resulted in much of the present day economy of Ventura County. He was Thomas R. Bard, later U.S. Senator Bard, who built a magnificent estate *Berylwood* not far from the fledgling port.

The Chumash village, *Wene'me* is no more nor is it a resting place. The site now is occupied by bustling activity of the Naval Construction Battalion Center which was established in 1942 as an advanced base depot for the newly formed Navy Seabees. The port as such had earlier been developed by the creation of the Oxnard Harbor District and was financed by local bond issues. It was and is the only deep water port between Los Angeles and San Francisco. Thomas Bard's beloved *Berylwood* acres became the prime staging area for construction supplies, equipment and men destined for the Pacific Theatre of Operations of World War II.

And the same was true during the Korean War and most recently in the decade-long and massive construction support to South Vietnam.

Perhaps the title Seabee Center has become slightly outmoded, *Seabee city* would more truly encompass the responsibilities of the present day base to the Naval Construction Force. Or even, to an extent, *NAVFAC-West*, referring to the many working departments that the Commander of the Naval Facilities Engineering Command (NAVFAC) has assigned to the center for world-wide support of the command's mission.

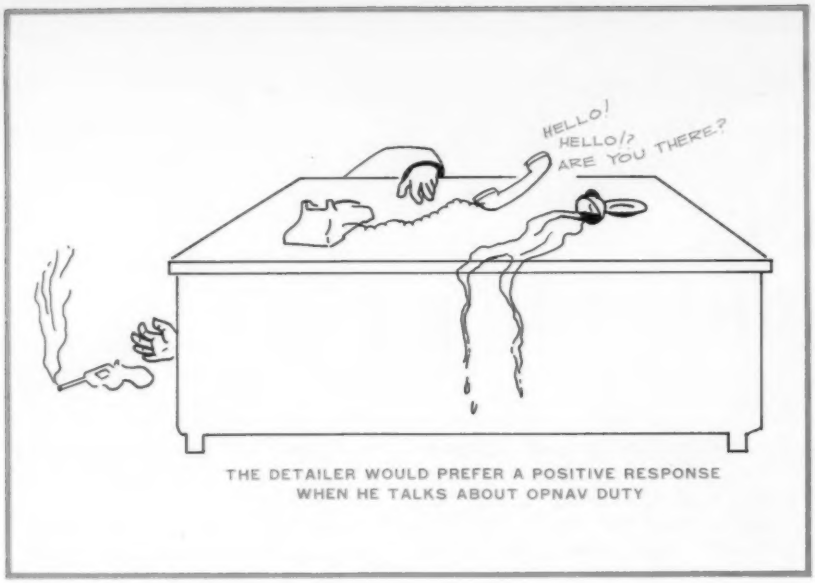
Typical of the latter is the Civil Engineer Support Office (CESO) a multi-faceted department of the Construction Battalion Center that oversees construction equipment inventories, tables of basic needs for operational forces, contingency plans in both manning and equipment and standardization of Seabee tools and supplies. Or, the Facilities Systems Office (FACSO) which furnishes computer and data processing services to Headquarters and to most of the Engineering Field Divisions of the command.

And, the center has long been the location of the Civil Engineering Laboratory, dedicated to the research and development of naval construction techniques and products.

The present commander of the center is Capt. O. L. Dixon, III, CEC, USN, who also is commander of the 31st Naval Construction Regiment of the Construction Battalions-Pacific. Port Hueneme

(Continued on page 40)

AMERICAN REVOLUTION BICENTENNIAL 1776-1976



THE DETAILER WOULD PREFER A POSITIVE RESPONSE WHEN HE TALKS ABOUT OPNAV DUTY

duty with

By CDR. D. L. McCORVEY, CEC, USN
and
CDR. A. S. POOLE, CEC, USN

From my previous experience in the CEC detail office in the Bureau of Naval Personnel and my current experience as the Director, Shore Facilities Programming Division, OPNAV (OP—44), I think that Commander McCorvey and Commander Poole have prepared an article which will be of great value to a large number of Civil Engineer Corps officers. They have drawn upon their many varied responsibilities and experiences during their tour in OPNAV and present a readable, interesting and also a very accurate portrayal of the challenges and opportunities for Civil Engineers on the staff of the Chief of Naval Operations.

From my personal observations I heartily concur with their discussions and opinions. I would, however, disagree with one part of their article, their classification of the three basic echelons of OPNAV, i.e., the CNO, other flag officers and action officers. There *are* flag officers who are from time to time also action officers.

This article deserves thoughtful reading by all Navy Civil Engineers.

R. F. JORTBERG
Rear Admiral, CEC, USN

• Washington, D.C.

Each year some two or three CEC officers receive a call or letter from "Joe, The Friendly Detailer," discussing potential assignment to the Office of the Chief of Naval Operations (OPNAV).

You could be one of them!

Admittedly, those pages of your directory showing OPNAV billets aren't covered with dirty fingerprints from over-use. You probably were thinking more of Europe, Hawaii, or San Diego. As a result, cultural shock sometimes sets in. Glazed eyeballs and incoherent mumblings punctuated with sotto-voce profanities can be symptoms of the ailment.

After all, you don't know that much about OPNAV and what you have heard about the Pentagon probably isn't all good. Public Works . . . or contracts . . . well, that's different . . . but OPNAV? Quickly you review your career.

"Did I go wrong?" you wonder. "Am I to become a faceless bureaucrat?"

We first want to assure you that you didn't go wrong. Neither will you be faceless. After that sinks in you'll need some information, which, while not completely removing cultural shock, will at least allow you to mask the external symptoms, retain your aplomb in front of subordinates, and comfort your family.

Looking back on a collective seven years of duty here, we assess OPNAV, like any Navy job, as a combination of both satisfying . . . and not so satisfying . . . experiences. However, we must admit to ourselves, even if grudgingly so, we were given a valuable insight of the Navy not obtainable from any other vantage. Having fired off that bit of embarrassing candor, our purpose is to pass on our view of OPNAV, how we see the CEC officer's contribution, how he works while there, and what he takes with him when he leaves.

Let's start with the organization chart — it shows a block representation of OPNAV identifying major functions; in parentheses are the numbers of Civil Engineer Corps Officers currently assigned. (See pg. 39)

We won't attempt to describe the responsibilities of each organizational element and billet. Rather, we want

OPNAV

a view from the bottom of The Top

to talk only about those aspects of OPNAV duty we believe to be significantly different from our past CEC experience. Nor can we argue that some elements of OPNAV duty are not present in other jobs. What makes OPNAV different is the way in which the staff functions on a daily basis.

Appearing to the outsider as intricately compartmentalized, a working viewpoint presents only three basic echelons of organization: (1) *The Chief of Naval Operations,* himself, (2) *Other Flag Officers,* and (3) *Action Officers.* Day-to-day decisions and the making of Navy policy in all but the most exceptional cases are achieved by interaction of the latter two groups both within and across functional lines. An understanding of this interaction, we think, is fundamental to a productive tour.

Why? Because an *OPNAV Action Officer* is what you'll most likely be.

First, some necessary insight on OPNAV structure — while the basic diagram of the organization has been constant in recent years, the working levels have changed frequently.

Why? Because new problems arise. These problems often cross functional lines without clear ties to existing organizational interest. Accommodation forces change and the need for fast change forces flexibility. OPNAV organization meets these needs through two avenues. First, military personnel are used almost exclusively in management/executive positions. Thus, Civil Service procedural constraints do not impede quick personnel movement or changing work assignments.

Secondly, but more significant, is the use of the Action Officers. Exposure to the way Action Officers do business makes OPNAV duty a valuable experience in a Navy career. We're therefore going to describe the concept in some detail to make our point.

The primary function of OPNAV is to assist the CNO in decision making. In this process, the Action Officer (A.O.) plays a central role. His raw material comes from many directions. The fleet, other major claimants, field activities, the Army and Air Force, JCS, DOD, Executive Departments, and Congress all present requests or projects biased to divergent objectives. And, more than likely, these describe nothing more than problem symptoms. Defined problems are seldom handed to an Action Officer. Synthesis in this process precedes analysis. The Action Officer must convert the various inquiries or recommendations to useful information and from that, structure the problem. However, this alone is not enough; other interests within OPNAV must agree that a problem exists, that the problem is correctly described, and that the timing is right for problem resolution.

Having found agreement in these preliminaries, problem analysis with selection of a preferred alternative is the easier part of the process. Analysis in OPNAV, however, does require special considerations

CLOSE WORKING RELATIONSHIP WITH FLAG OFFICERS

THE ACTION OFFICER FULLY EQUIPPED

... a view from the bottom of The Top ...

not found in other Navy organizations. International relations, national politics, and Joint Service interests are often the key to any proposal.

The Action Officer is, in this environment, both synthesizer and analyst. Usually assigned a functional area, he becomes principally responsible for a significant slice of Navy interest. Information in the form of messages, documents, phone calls and personal conversations is collected. Usually no organizational backup exists. He is "it."

What to do initially, both in direction and degree, becomes his determination. Interestingly, Action Officers are of all ranks from lieutenant to captain and specific action assignments are not necessarily related to the formal organizational hierarchy.

The only question asked within OPNAV is, "Who's got the action?"

Formulation of a course of action, however, is not the end. Coordination in OPNAV, because of the myriad interests involved, becomes an important consideration, and consumes significant time. As a coordinator, the Action Officer plays his second major role. His positive recommendation on proposals developed by others is indispensable to concurrence by the flag officer he represents. And without approval of all of the interested and involved OPNAV elements, there is little chance that a flow in the form of a message, letter or directive will result. Likewise the proposals which he himself develops stand little or no chance of success unless he, too, has obtained the concurrence of other Action Officers, including many only peripherally interested.

We have emphasized in a few brief sentences the highly individual nature of OPNAV work. With much dependent upon individual effort, personal relationships become the key to getting anything accomplished. In retrospect we believe that three traits — professional knowledge, attitude and credibility — are essential.

The first two, professional knowledge and attitude, are important in any assignment. As in any command, others quickly learn what each officer can offer in subject knowledge, ability, and a desire to contribute. Credibility, however, is more difficult to describe. We see it as a form of peer perception, resting principally on an Action Officer's record in forecasting his own boss' response to a proposal. When your credibility is good, other Action Officers accept your views to be those of the Flag Officer you represent. This foreknowledge, or anticipation, if you will, of how your organization will react allows other Action Officers to formulate on the first go-around a proposal which considers your interest. It provides to him reasonable assurance that his proposal will move smoothly through the coordination process.

The dialogue at the A.O. level reduces formal iterations in staffing and is essential to work flow, not to mention good personal relationships among Action Officers.

Within his own organization the Action Officer often functions, too, in the traditional staff role, marshalling and sorting facts, and providing unbiased analyses to his seniors.

We have intentionally emphasized the role of the individual at the expense of the usual exposition on DOD Planning, Programming and Budgeting; but some mention of the PPBS is in order. In our view the Action Officer is the common link between two major segments of OPNAV decision making — the unstructured, represented by a flood of seemingly unrelated input from all sides (major claimants, individuals, Congress, OSD and other executive departments) — and the structured portion exemplified by the PPBS.

We view the Action Officer as an initial formulator of CNO decisions which, after further definition and

"FEAST OR FAMINE"
SOMETIMES IN THE SAME OFFICE

refinement by the major claimants, result in effective PPBS resource decisions.

What, then, does a Civil Engineer Corps officer bring with him to OPNAV and what professional gains does he take with him when he leaves?

On any major operational staff there is a need for specific knowledge. Our knowledge in all aspects of facilities management is often sought. In other words, part of our contribution is just that which we are trained to do by experience. Beyond this, however, are the analysis and synthesis skills which come from an engineer's education and an engineering approach to problem solving.

The professional gains accrued are more extensive. First, and most important, is a different view of the Navy, one in which our specialty is clearly and strongly placed in perspective — a means to Navy objectives and not an end in itself. This comes not only because we work on problems which range far beyond our specialty, but also because our predominant contacts are with Line Officers. The decisions to which we contribute are Line decisions and enough knowledge about Line problems is gained to foster empathy with Line peers.

There is also continuous contact with many Flag Officers — and what gives that importance is that it takes place in a working environment. This working relationship offers an intimate insight into the Navy as viewed from Flag perspective. We believe that nowhere else in the Navy does a like opportunity exist.

Of course, basic skills such as writing and speaking mandatorily polish themselves here. And lastly, OPNAV must be recognized as the Navy's highest forum where each officer in some way can influence the Navy's future.

There are disadvantages, too, and it is only fair to mention them. Work here comes as feast or famine, and one can neither plan nor schedule his efforts. Too, we miss not having our own organization to manage — and an assistant (or two or three) to help. No one enjoys being a "gopher" and much of what we do requires running the Pentagon corridors. We would prefer as well, to make, rather than structure, decisions. The office spaces are less than prestigious and commuting in Washington is a pain.

On balance, we even recommend that the interested CEC officer seek an OPNAV assignment and complement past learning from the bottom up with a view of the Navy from the top down.

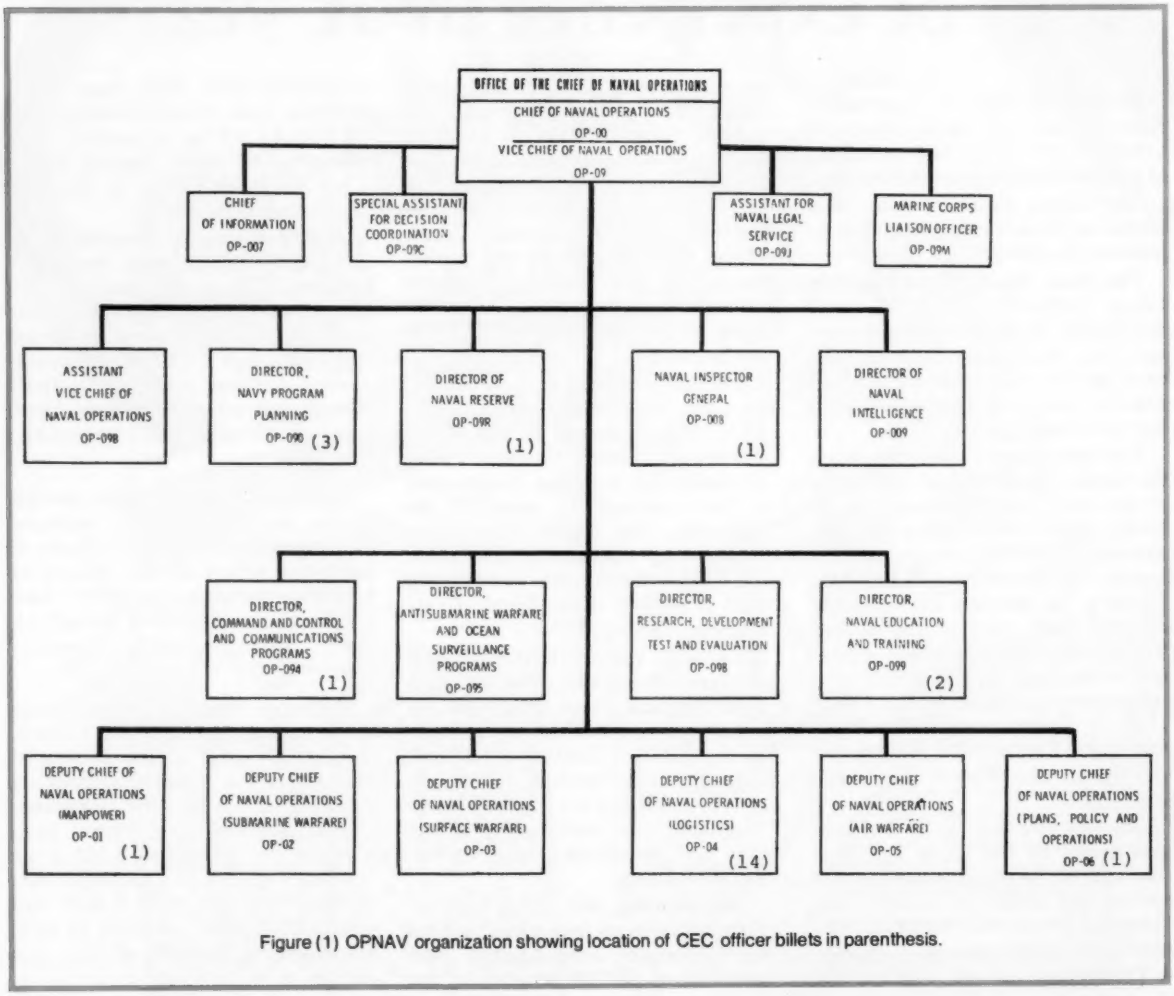

OFFICE OF THE CHIEF OF NAVAL OPERATIONS
CHIEF OF NAVAL OPERATIONS OP-00
VICE CHIEF OF NAVAL OPERATIONS OP-09
CHIEF OF INFORMATION OP-007
SPECIAL ASSISTANT FOR DECISION COORDINATION OP-09C
ASSISTANT FOR NAVAL LEGAL SERVICE OP-09J
MARINE CORPS LIAISON OFFICER OP-09M
ASSISTANT VICE CHIEF OF NAVAL OPERATIONS OP-098
DIRECTOR, NAVY PROGRAM PLANNING OP-090 (3)
DIRECTOR OF NAVAL RESERVE OP-09R (1)
NAVAL INSPECTOR GENERAL OP-008 (1)
DIRECTOR OF NAVAL INTELLIGENCE OP-009
DIRECTOR, COMMAND AND CONTROL AND COMMUNICATIONS PROGRAMS OP-094 (1)
DIRECTOR, ANTISUBMARINE WARFARE AND OCEAN SURVEILLANCE PROGRAMS OP-095
DIRECTOR, RESEARCH, DEVELOPMENT TEST AND EVALUATION OP-098
DIRECTOR, NAVAL EDUCATION AND TRAINING OP-099 (2)
DEPUTY CHIEF OF NAVAL OPERATIONS (MANPOWER) OP-01 (1)
DEPUTY CHIEF OF NAVAL OPERATIONS (SUBMARINE WARFARE) OP-02
DEPUTY CHIEF OF NAVAL OPERATIONS (SURFACE WARFARE) OP-03
DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS) OP-04 (14)
DEPUTY CHIEF OF NAVAL OPERATIONS (AIR WARFARE) OP-05
DEPUTY CHIEF OF NAVAL OPERATIONS (PLANS, POLICY AND OPERATIONS) OP-06 (1)

Figure (1) OPNAV organization showing location of CEC officer billets in parenthesis.

Seabee city . . .

(Continued from page 35)

is home port for Naval Construction Battalions 3, 4, 5 and 40.

There are two training units: the Naval School, Civil Engineer Corps Officers, and the Naval Construction Training Center (for enlisted Seabees are located at the Seabee city). And although they are elements of the Naval Technical Training Command, Memphis Tenn., they are locally commanded and staffed by Civil Engineer Corps officers.

Add to all of this, the center is a host to the Naval Support Force, Antarctica; Naval Nuclear Power Unit; and the Naval Ship Weapon Systems Engineering Station aside from several minor yet important offices.

Four interesting historical assets of the Port Hueneme Seabee Center are the CEC/Seabee Museum containing hundreds of artifacts and mementos of Navy construction and civil engineering; the Moreell Library which is the depository for letters and papers of Admiral Ben Moreell, CEC, USN; and the Command Historian, housing the archives of the Naval Facilities Engineering Command and its predecessor, the Bureau of Yards and Docks.

And, then there's *Berylwood*, the Bard family home. It is still quite alive. The mansion serves as the Officers Club and has recently been decorated with photographs of its ornate grandeur and oil paintings of the Bard family life.

The action continues at "Seabee city" and because of its manifold activities, it is projected that it is a rare Seabee or Civil Engineer Corps officer who has not been stationed at Hueneme . . . or isn't presently . . . or will be stationed in the future at the "quiet resting place."

About *Hueneme* and its pronunciation: the Chumash reportedly called it *wa-ne'-me;* the 19th century contemporaries of Thomas Bard said *wy-nee-mah;* and current usage has it *wy-nee-mee.*

Naval School, Civil Engineer Corps Officers

A lot of experience in 31 years

• Port Hueneme, Calif.

Thirty-one years isn't generally considered an important or extensive era when two centuries of national existence are considered.

Just where those 31 years fall within a bicentennial period can, however, be epochal.

The Naval School, Civil Engineer Corps Officers (CECOS), was established 31 relatively short years ago, but these three decades have been packed with events of national drama and trauma unequaled during a similar period.

The school was a fledgling when the world was introduced, for better or for worse, to the atomic age in 1945. And indicative of the continued flexible response of the faculty and curriculum of CECOS, a course in recovery from atomic disaster and shelter protection was quickly established. The course was recognized for its worth with co-sponsorship shared by the Office of Civil Defense with the Navy Facilities Engineering Command (then still the Bureau of Yards and Docks).

The atomic age soon became overlapped by the space age, and the age of two undeclared wars, social and political unrest and tragedy, and of magnificent accomplishments, too.

Throughout the era, CECOS has adapted rapidly to meet the needs of the Navy and consequently the nation. Whether it be to produce more Seabee operations officers to meet the construction requirements of a Korea or a Vietnam or prepare the young Civil Engineer Corps officer with the strategy and tactics to combat the domestic dangers threatening the natural environment or energy resources, CECOS has responded.

The school, presently commanded by Capt. LeRoy D. Lawson, CEC, USN, is an element of the Naval Technical Training Command who oversees the training techniques to best interpret the needs of the sponsor, the Naval Facilities Engineering Command. (For more detailed information concerning CECOS, see *The Navy Civil Engineer,* Spring 1975.)

CECOS instruction not only prepares the newly commissioned Civil Engineer Corps officer for his initial assignment which is primarily in the fields of Seabee operations, contract administration and public work management but also "refreshes" the more senior officer with new management philosophies and techniques.

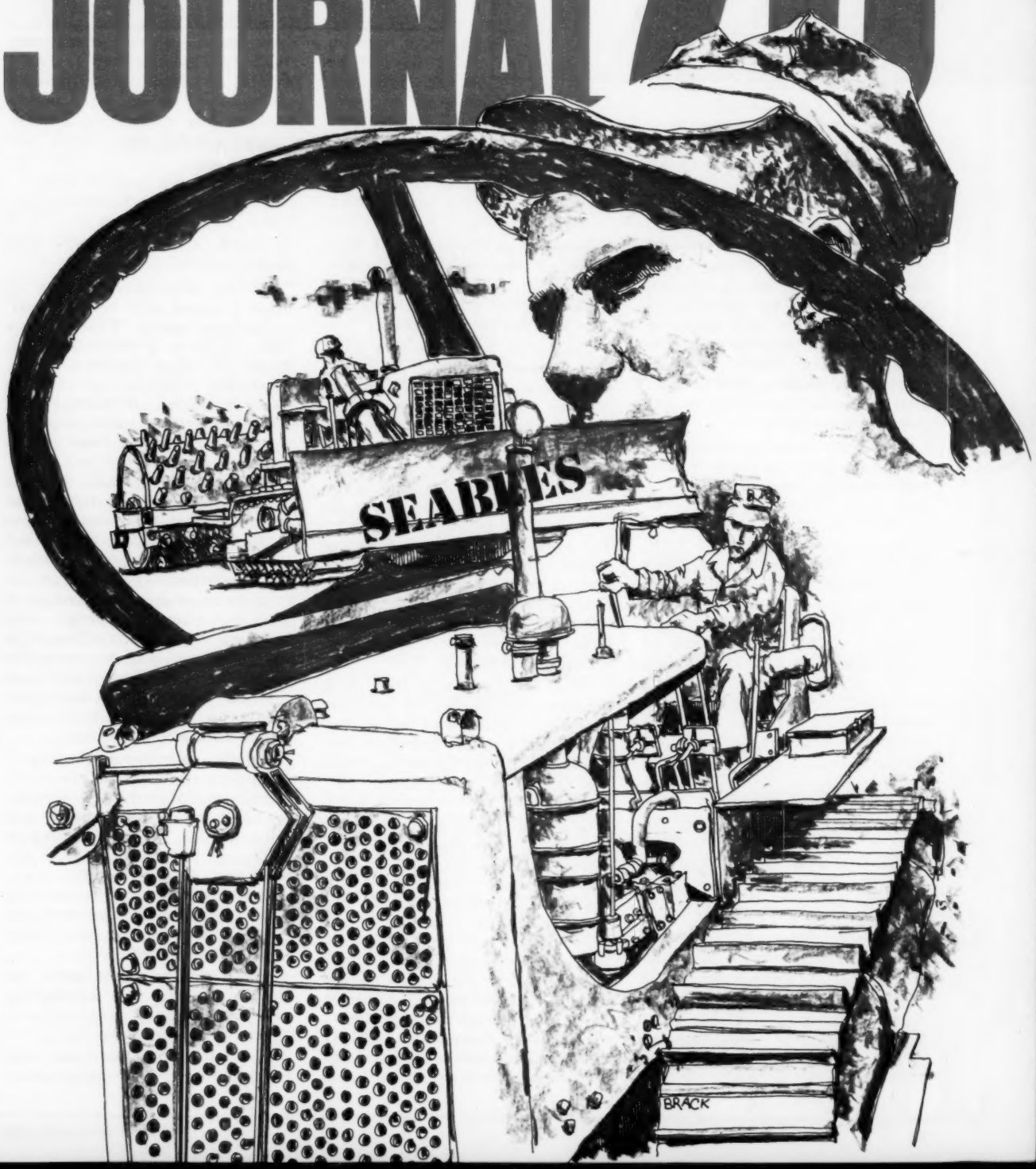
Highlighting this year's instruction has been an invitational course for lieutenant commanders, who returned to CECOS to learn of the responsibilities that may soon confront them as commanders and captains. The seminar was presented by senior leaders of the Civil Engineer Corps in fields of their various specialties.

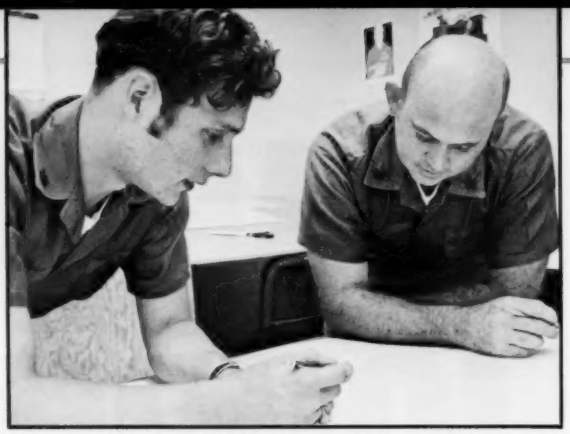
Another recent innovation is Second Tour Training for junior officers. The basic qualification course prepares officers for their first tours. Now officers are cycled back through CECOS for accelerated courses relating to their second and subsequent tours where they have not had previous experience.

CECOS attendance is not limited to the young engineering graduate (see page 62) but includes officers of the other armed forces, officers of friendly foreign nations, and government employees attending many of the shorter specialty courses.

Although CECOS' 31 years may be minuscule in national history, it certainly isn't to the history of the Naval Facilities Engineering Command or the Civil Engineer corps. During the short span CECOS has graduated 5,500 basic students (the CEC strength has recently averaged only 1,400) and over 11,000 other students to meet the changing demands of Navy and nation.

SEABEE JOURNAL 76





Ooof — NMCB-1's physical fitness program succeeded because of improved command communications (left). Thorough planning and information flow assured everyone knew what was going on (above).

Talking it over

By ENS JAMES N. FOWLER, CEC, USN

• Puerto Rico

All Naval Mobile Construction Battalions have an identical general mission outlined by the Chief of Naval Operations: each battalion must extend construction support to Naval and Marine forces, defend its construction projects, and conduct disaster control operations in any civil or military emergency.

A difficulty arises expressing this general mission — in terms of daily performance — to each of the 563 men in a battalion. Failure to communicate this to each member often results in a lack of team effort, lessened cohesiveness, and inadequate commonality of purpose.

NMCB One found this out in summer, 1975, after arriving at Camp Shields in Okinawa, for an eight month tour. Typically, companies and departments worked well enough, yet there was no cohesiveness in their activities.

This showed up in the reactions of crew or shop workers and their immediate supervisor. These individuals, largely E-6 and below, were similar in two respects, first neither was aware of any concrete command objectives. Everyone knew the battalions hoped to finish various projects, yet when questioned in August, battalion personnel consistently failed to list even this as a specific command goal.

Secondly, few battalion personnel knew of project construction, battalion training, or command policy-making activities either parallel to or supportive of their efforts. Builder crews at an extensive enlisted club project were unfamiliar with the activities of other crews on the same jobsite.

Individuals laying tile in a toilet were unaware of other crews installing ceiling tile. More damaging, however, was that neither group was aware of both crews' contributions to the overall project.

A lack of awareness diluted battalion military training. Ever present was the attitude, "Why do we have to go through this again?" The worst situation arose from the failure to tell of battalion support policies to those they would most likely effect: command efforts to improve camp conditions — and thus improve morale — were sincere, but unknown.

This certainly was less than desirable. Nonetheless, the battalion still functioned, and work was produced. Military courtesy and appearance were above average. The problem was almost self-disguising.

Command level goals existed, and middle managers, E-7 and above, communicated openly among themselves. Thus, the command felt secure that all was well. Inefficiencies and low morale were diagnosed incorrectly as normal deployment loneliness, which certainly was a contributing reason. Yet, communication failures are almost always two-way. Crews were unaware of command activities and overall construction efforts, and the command was equally unaware of crew misconceptions and misunderstandings.

Civilian construction efforts are often plagued with similar communication failures. That situation often results in a production slowdown and, when ignored too long, adversary relationships develop between labor and management. NMCB-1 reached early stages of that sort of situation three months into the deployment!

The command then became aware of the potentially serious climate through troop contributions to the human relations council and the results of an operational readiness inspection. Their findings led to a series of solutions unique to NMCB-1. Simply enough, the battalion commanding officer, Cdr R. G. Shirley, and his executive officer LCdr R C. Hayes, developed a set of command goals and objectives. This was the first of a two-part solution to the problem.

Briefly, command goals and objectives were divided into two headings: "Maintain the Professional Image of the Seabees," and "Readiness." The command outlined twelve goals for the battalion: "safety, quality workmanship, complete priority projects, equal opportunity, appearance and military courtesy" were listed under "Professional Image."

Preparation for embarkation, on-the-job training, military training and physical fitness program" were encompassed in "Readiness."

Copies of this outline were published throughout the battalion.

Its scope presented a major deviation from past objective management. This outline sought to give all items equal weight rather than reach each goal separately. The command wished to improve and perfect all twelve of its objectives simultaneously.

Publishing the list was minor compared to communicating and fulfilling its letter and intent. Dissemination was carried out by the chain of command with company commanders and chiefs holding group discussions in their organizations. In such sessions the outline, precedence and scope of the goals and objectives were covered.

Initial cynicism was moderate, as was expected, but to many, the idea sounded good. At last, each battalion member was aware of exactly where the command stood and what the command wanted to do.

The letter of the plan to familiarize each member with goals was also easy. Success now lay in adoption and exercising the nature and intent of the concept.

Communications was the cause of the problem. The solution then was better and more explicit command direction. This showed dramatically in several examples. No greater success was reached than in battalion embarkation preparation and final drill execution.

Middle management and crew leaders were fully aware not only of their responsibilities, but also the responsibilities of their peers and supportive elements. Cooperation and effectiveness were high. The effort to inform each working member of the total embark plan was not easy, yet it paid off.

Other successes were quality construction, project completion and on-the-job training. In the enlisted club, a week-by-week crew assignment, completion schedule and work summary was prepared. Each individual was informed of the total completion goal, his part, his assistant's part, and the function of crews around him. The improved quality and skill improvement led to the timely completion of a three-year project.

Hindsight indicates this could not have happened without concrete objectives and thorough crew involvement.

The physical fitness program — an often disliked program — was also turned around through the new effort. By informing the battalion of specific command goals and eliciting greater understanding of the need for physical conditioning, this objective, too, gained acceptance and support.

Not all attempts met such success. Analysis indicates let-downs occurred primarily at the middle management level. By failing to carry through the continuing timetable support, the intent of the goals and objectives was missed.

This backsliding appeared in disaster preparedness training and — controversially — in safety. Though no serious accidents occurred and despite its rating as first in importance, safety was difficult to promote. This negativism faces every construction site in America and theories abound as to its cause. However, it is simple enough for this examination to say further communication efforts need be applied.

Generally, objectives were met. The attitude at all levels toward battalion directions greatly improved, and those at lower command levels were soon informed of battalion efforts in their welfare. The communication dam was breached and information flowed up and down.

Morale increased with the increased clarity of purpose. The command, by outlining specific goals, developed the missing connection between individual activity and battalion ability to conduct its mission.

Battalion goals and objectives remain with the exception of goal adjustments for special homeport and deployment conditions. The program illustrated positively to NMCB-1 that battalion problems can be more fundamental than often assumed. Communications will always be a problem in any organization and control is often difficult. Through correct use of specific goals and objectives, control can be reasonably obtained and overall missions accomplished.

Freezebees?

By LT ALEC T. PRINGLE, CEC, USN

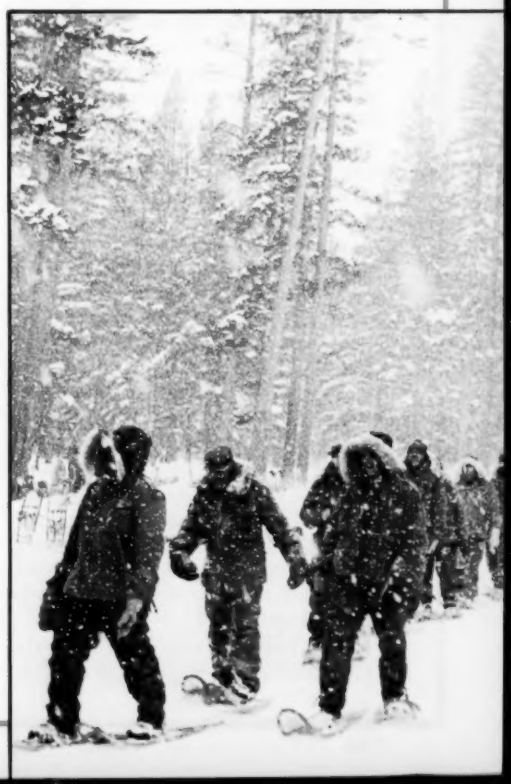
• Port Hueneme, Calif.

From the sunny, palm tree overgrown island of Diego Garcia in the British Indian Ocean Territories to the sub-zero weather of winter in the Sierra Nevada in five months is a drastic — but not uncommon — fact of a battalion's life.

Such was the scenario of Naval Mobile Construction Battalion Three from October 1975 to March 1976. Under the continually sunny skies of Diego Garcia, and in the midst of a demanding construction program, longing thoughts of cool weather and snow came often.

That longing was realized when the battalion returned to homeport in October 1975. The battalion was soon planning for a cold-weather exercise at the Marine Corps Mountain Warfare Training Center at Bridgeport, California.

Most recently Naval Construction Force units operated mostly in temperate to tropical climates. With the phase-down of Seabee Support



Seabees? — The "frozen chosen" of NMCB-3 set up a most untypical Seabee camp for a chilling field exercise.

to the Naval Support Force Antarctica, a different approach to keeping cold weather experience in the Seabee community was needed.

Cold weather homeport training of selected battalions was the result.

After much planning, clothes-fitting and classroom training, the battalion was ready. Each man received survival training and the special clothing to live in a cold environment. An average back pack of required clothing tipped the scales at 80 pounds so a vigorous physical training program was needed.

In late February, the 86-man Air Detachment mounted out to Bridgeport two weeks ahead of the main body of Seabees. The Air Detachment prepared for the arrival of the battalion and completed several construction projects for the Marines. An insight into some of the problems of construction in cold weather was quickly gained.

March 2 found the battalion waist deep in snow at Silver Creek meadow. Blowing snow partially obscured the camp as it was set up.

At 8,400 feet above sea level, the meadow was almost encircled by mountains and large pine trees dotted the site. Men who months before might have searched for puka shells in the glare of sparkling beaches off duty now tried to spot fire wood under a three-foot mantle of fresh snow.

The exercise was held to train personnel to survive in cold weather and the men were quick to use every classroom skill and their own ingenuity.

Company bivouac areas appeared and perimeter defensive positions were established to combat the elements and prepare for the tactical phase of the field exercise. Trees, stumps, snow drifts, natural depressions and blocks of compacted snow were used to shield camp sites from the wind.

While the Air Detachment in previous weeks had worked in relatively mild weather, the battalion was now faced with sub freezing temperatures. As shelters were completed, the art of making fire in the windy high altitude was mastered with varying degrees of frustration and speed. With camp established and after a welcomed hot meal, the men turned in from the first day in the field.

After enduring slipping into an ice cold sleepng bag at night, the prospect of leaving the now warm bag for the cold morning air was equally uninviting. A survey of shelter interiors told you it was cold. During the night moisture from one's breath condensed and froze in an ice sheet on the inside.

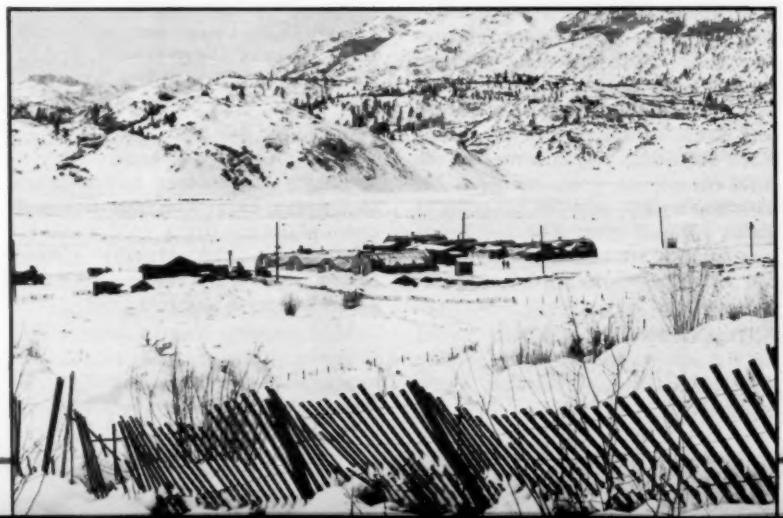
The temperature dipped below zero just before sunrise. For those who didn't keep their canteen in their sleeping bags, the contents were frozen solid. Overnight, materials and equipment took on new properties and caused new problems.

Tents, shelter halves, ground cloths and tent pegs were frozen solid to the ground. Axe handles and entrenching tools became brittle and plastics and rubber lost much of their pliability and cracked in the cold. Unused radio batteries had to be kept relatively warm in order for them to operate when needed.

If you wanted to use a pen, you kept it warm or the ink wouldn't flow. Diesel fuel jelled in the extreme cold and needed special precautions.

The second day was devoted to preparing a defensive camp perimeter, a snowshoe hike into the surrounding area, and correcting shelter deficiencies noted the first night. The weather turned clear and sunny and the wind died, offering the first relief from the depressive cold.

Homeport — The Marine Corps Mountain Warfare Training Center near Bridgeport, Calif., became "home" to NMCB-3 for cold weather training.



At sunset, however, temperatures took a dive as the battalion prepared for the tactical exercise. Action came quickly and the men kept busy combating not only aggressors but the severe cold. As temperatures dropped, frostbite potential reached the point where the value of continuing the exercise was unacceptable.

The exercise stopped for the night and temperatures bottomed out at 18 degrees below zero. The training, equipment and clothing given to the battalion was tested to its limits that night.

As a result of the training and exercise, recommendations for improvements in equipment and clothing were made which led to better prepared Seabees. Most important, the men of NMCB-3 came away from Bridgeport confident of their ability to combat cold and with a healthy respect for its potential hazards to even the best trained individual.

It is a long way from Diego Garcia to the Sierra Nevadas but the lesson learned and experience gathered will remain ready for use, wherever Seabees might be called upon to work.

Spanish Bee, Senor?

By JO3 CHRISTOPHER LEPPEK

• Port Hueneme, Calif.

Main Drag — Taromina, Sicily, became a popular liberty spot for NMCB-4 Det. Sigonella personnel.

It has been more than a year since Naval Mobile Construction Battalion Four began emergency construction for Vietnamese refugees on Guam during *Operation New Life.* The battalion's reaction during that operation was partially responsible for its winning the Peltier Award, but NMCB-4 could not rest on these laurels.

Homeport passed quickly with the battalion holding military training at Broome Ranch and Twentynine Palms, Calif., as well as completing the CBC trailer park at NCBC Port Hueneme and a number of technical training courses. NMCB-4 is now well into its European deployment with the main body at Rota, Spain, and detachments at Sigonella, Sicily; Holy Loch, Scotland; Nea Makri, Greece; and LaMaddalena, Italy. A small detachment is taking part in the Seabees' effort on Diego Garcia as well.

NMCB-4 is the Atlantic-European Alert Battalion, a status requiring high military readiness and mobility. In a European contingency or natural disaster, the battalion or an air detachment would have to mount out completely in less than 48 hours. The battalion has worked to maintain this readiness since 1974. On the last deployment to Guam, NMCB-4 was the Pacific Alert Battalion and Operation New Life was proof the preparation paid off.

During the last homeport, NMCB-4 trained its men in the use of military tactics and weapons including the 106mm recoilless rifle, 81mm mortar, M-79 grenade launcher, M-60 machine gun, M-16 rifle and .45 cal. pistol. The men were tested at the Marine Corps Base at Twentynine Palms, Calif., in a three-week exercise in January. Desert survival and combat techniques were the focal points of that exercise.

The Pacific Seabees of NMCB-4 now keep ready in Europe with regular training and drills. This readiness will be tested in exercises conducted by COMCBLANT.

The battalion's European deployment, however, is concerned mainly with construction. A wide assortment of projects is being undertaken by the main body and detachments. In Rota, major jobs include an addition to the Calibration Laboratory at the airfield, replacement of the fender system on Pier II, installation of a MUSE cold iron system on the same pier, construction of a causeway connection and an antenna repair project. Also, NMCB-4 is responsible for improving the Seabee camp.

NMCB-4's largest detachment, located at Sigonella, Sicily, has 130 men. The men of this detachment have nearly as many projects as the main body. They include constructon of an Air Frames Repair Shop, power check pad, EM/CPO Club, completion of an ordnance magazine, handball court, theater addition and upgrading the Seabee compound.

In Scotland, Holy Loch's 21 Seabees are renovating the PWD garage and Hobby Shop facility. In Nea Makri, Greece, a six-man team is renovating the air conditioning units. There will soon be another small detachment to LaMaddalena, Italy, where a play-

Thataway — An old piling is removed from the pier at Rota, Spain (left). PN2 Faia Ali Ifua shows NMCB-4 Air Detachment Personnel how to use an 81mm mortar (above).

ing field and gymnasium will be constructed.

Despite the workload, the deployment is not all military drills and construction. Many battalion personnel have never been to Europe. Accustomed to the coral of Diego Garcia or the palm-lined beaches of Guam, they have discovered liberty in the "Old Country" a fascinating experience.

At Rota, the men have found Andalucia perhaps richer in culture and tradition than anywhere else in Spain. It is the heart of bullfighting country and of famed Spanish horsemanship.

Seville, a 90-minute drive from Rota, is said to have the best bullfights in the country.

Called the "Florence of Spain," its tree-lined streets shade Spain's beautiful cathedrals, churches and houses. The main body spent much of Easter weekend there, observing the solemn religious processions on Holy Thursday night and Easter Sunday.

A more adventurous group of Seabees took part in the traditional Easter "running of the bulls" in the scenic village of Arcos de la Frontera. The angry bulls didn't injure any of the men, but they did a great job of scaring them.

Nearer to Rota is the ancient seaport of Cadiz, said to be the oldest inhabited city in Europe. One of its many claims to fame is that Christopher Columbus sailed out of its harbor nearly 500 years ago on two of his voyages to America. There is also Jerez, home of the world's best sherry and, to the south, Morocco and Gibraltar on the Mediterranean Sea.

Those men on the sun-drenched island of Sicily suffer no lack of things to see, either. Near the detachment's home in Sigonella is the active volcano, Mt. Etna, where one can reach the fiery summit either by hiking or taking a bus.

The nearest city, Cantania, has buildings made of Etna's black lava. The Sicilian capital of Palermo is famous for its classic art treasures, and Taormina is regarded as one of Europe's more popular sea resorts.

Perhaps the most interesting spot in easy reach of Sigonella is Siracusa, the ancient Roman metropolis. The area is dotted with ruins of both Greek and Roman eras, and its unique theater features original Greek plays.

In Scotland, the men are compensated for the cold wind, gray skies and living quarters aboard ship, by liberty. Edinburgh, with its castle, and Glasgow are favorite places. Also, England isn't too far away.

The six men at Nea Makri have only to travel a short distance to Athens.

The European deployment is a busy one. The men of NMCB-4 spend long hours on the job and with military training. On liberty, the pace doesn't slow up with such a variety of things to see and do.

When the battalion returns to Port Hueneme in November, it will probably be a very tired one . . . but a satisfied one as well. This battalion of Pacific Seabees has found Europe generally a fine place to be.

Contents: humans, 4 each

BY LT. MICHAEL F. CASEY
CEC, USN
Engineering and
Special Projects Officer

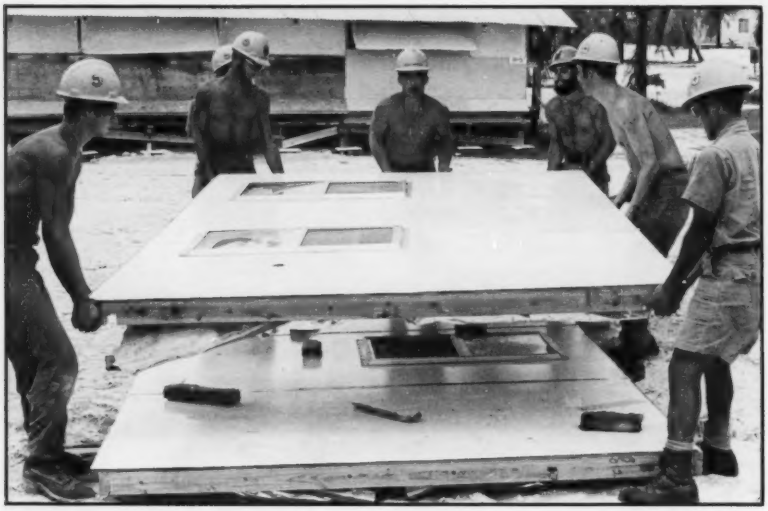
• Diego Garcia

In early 1975, barracks at Camp C. S. Cummins, home of the Seabees on Diego Garcia, consisted of a collection of SEA huts. The SEA or South East Asia hut is a wood-frame metal-roof building developed during the Vietnam war as a multi-use, temporary shelter that could be built quickly.

The SEA hut had been used based upon the expectation Diego Garcia would not become a permanent deployment site for Seabees. Accordingly, maintenance was based upon the idea the huts would be needed only briefly.

When it became clear Seabees would be involved in a major construction effort on Diego Garcia, it was decided rather than "rehab" existing SEA huts, they would be replaced with smaller modular berthing units. Similar units are used by civilian contractors at remote construction sites.

Design requirements were developed, plans and specifications



People container — Seabees at Diego Garcia unpack a "modular berthing unit (right), begin assembly by setting up floors and walls (above), and finish the task by setting the roof in place (below).

prepared, and a contract let for the manufacture of 82 modular berthing units. A second contract was let for the manufacture of 11 relocatable head units to replace those already at Camp Cummins.

The first eight berthing units were delivered to CBC Port Hueneme in July of 1975. Four were shipped to Diego Garcia and four units were kept at CBC for evaluation. NMCB Five was tasked with assembling the 82 units and removal of the existing SEA huts on Diego Garcia.

To evaluate the units and provide technical training on their assembly, the four units at CBC were built by NMCB Five as a part of their homeport training. The crew and leader which would set up the units on Diego Garcia was selected and built the four units under the supervision of the 31st NCR.

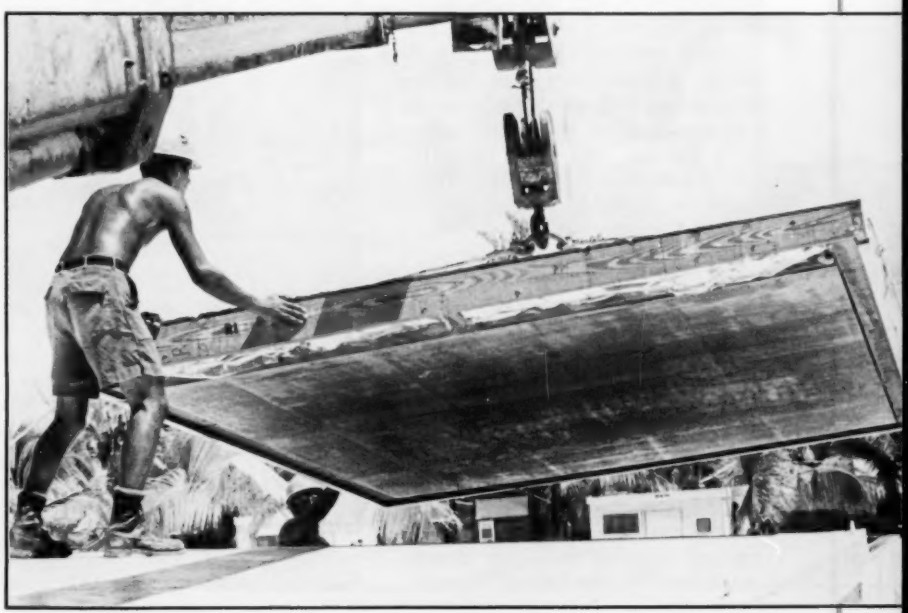
During construction several manufacturing discrepancies were found that needed correction so the units would conform to specifications and allow maximum efficiency in on-site construction. The manufacturer was directed to correct discrepancies on units not yet delivered and to provide the battalion with material needed to repair units already shipped to Diego Garcia.

Work on Diego Garcia berthing units started in December of 1975. The "berthing unit project" consisted of four separate phases including construction of the 82 berthing units, installation of 11 relocatable head units, and providing water, sewer, and electrical services for the new facilities. A detachment from NMCB One installed a new 13,800 volt primary electrical distribution system and a new six-inch fresh water distribution main.

NMCB Five Bravo Company was responsible for making water and sewer connections to the new head units, installing secondary electrical lines to the new facilities and tying the existing secondary system into the new primary system.

The first phase of Project NCF-I-66 consisted of building 25 berthing units and installing 11 head units. The standard arrangement was 12 berthing units in a circle with a head unit in the center. Each berthing unit was designed to house four people and was furnished with bunks, individual wardrobes, one card table, one writing desk and four chairs. All units were air conditioned.

Each 10' by 24' unit had ten sections: two end wall sections, two floor sections, four side wall sections and two roof sections. Although the unit was designed to be set up by a six-to-eight man crew in one day with only a small crane to lift the roof sections in place and hand tools to bolt the sections together, an additional crew was needed for each unit to correct manufacturer discrepancies



and repair shipment damage. Only 39 units were delivered before the contract was terminated.

Based upon lessons learned from the first contract and the experience gained building and occupying the first units on Diego Garcia, a contract for 46 more units was awarded to another manufacturer. The new units are designed to house six people and provide more space per man.

Set-up should be simplified and maintenance reduced because side walls, floor and roof will each be one piece rather than two as in the original units.

Eventually, all SEA hut housing on Diego Garcia will be replaced by air conditioned modular units.

Home, sweet carton — When completed, and all manufacturing errors corrected, the modular berthing units were arranged in a circle on Diego Garcia. A head unit is installed at center. Left is a view of the interior of a head unit.

Rebuilding from the rubble

BY JO2 CHRIS MILLER

A massive battle between tectonic plates in the earth's lithosphere is not the concoction of a demented science fiction writer. It is an earthquake.

And, it seems, each week another thunderous jolt to the surface of our world is in the news: Italy, then Russia, and most recently, China and the Philippines, where "tens of thousands, if not a million" were reported killed.

And, earlier this year, — Feb. 4, to be exact — the earth shook and rumbled in the tiny central America nation of Guatemala.

In that quake, buildings shook and finally crumbled, killing 19,000 and injuring another 66,000 — out of a population of only six million. Fully one in six of the survivors were homeless.

Adding to the terror, aftershocks rattled the already stricken Latin nation, toppling buildings already weakened by the initial big jolt.

Some 800 minor and major aftershocks were recorded.

But a few months later, things are different. There's a new phrase on the lips of all Guatemalans. "Guatemala en pie," they say. That means Guatemala is 'on its feet' again.

As you walk down the streets of the capital, Guatemala City, placards are taped to new plate glass windows in shops and restaurants, reflecting the people's hopes as they rebuild.

"Guatemala en pie" is a phrase that soon became familiar to 17 Seabees from NMCB-40. These Seabees were assigned in the wake of the earthquake to train Guatemalan workers in the construction skills they will need to rebuild.

Last April, the U.S. State Department asked for manpower help from the Department of Defense. The State Dept. bought several hundred 20' by 40' steel huts from the Navy, but couldn't find men skilled in putting them together.

The men who would put these huts together could also galvanize and help restore spirits of the Guatemalan workers, the State Dept. hoped.

Early in May, Ltjg Peter Motodlenich, a Public Works Officer, was told he would lead the 16-man Seabee team from NMCB-40 in the aid and recovery program. Ltjg Motodlenich was also tasked with liaison and, less than 24 hours after he was notified of his new assignment, he was on a plane to Guatemala.

When he got off the plane, all he could see was rubble. The bilingual civil engineer met soon after his arrival with the Guatemalan Minister of Public Works, Agency for International Development personnel, and other organizations aiding the recovery effort.

Although he was assigned mainly for liaison, he soon found himself immersed in personnel problems, logistic details, building material shortages and, of course, mounds of paperwork.

Motodlenich was joined in Guatemala May 10 by the 16 Seabees from Camp Moscript, Puerto Rico. Several Seabees were proficient in Spanish and all had seven to ten years experience in construction and electrical work.

These men soon found most hotels, office buildings and homes in upper class Guatemalan neighborhoods had survived the 1976 earthquake. A previous quake in 1971 had destroyed the city and most newer buildings were designed to withstand earthquake forces.

Their work centered in the poorer areas of Guatemala City where adobe and lumber homes and schools had been flattened.

To most Seabees, a steel-framed building is a common thing. To the Guatemalans who would assist the Seabees, the building was an unfamiliar mass of steel, bolts, and beams. The first task the Seabees faced was training Guatemalans in our construction techniques. Most natives were unskilled, and during training, if a man showed an aptitude for welding, concrete finishing, or electrical work, he was designated in his new trade and had a new career.

The Seabees' first project was a school to replace one originally built by the United States. The site chosen for the new school was a former country club lot.

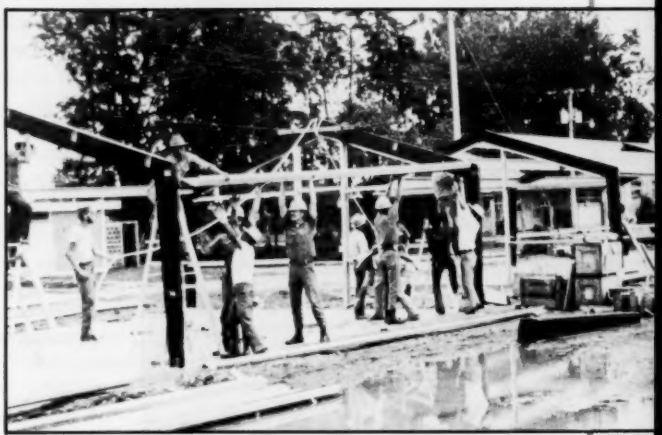
When the Seabees arrived at the site, they found some 80 first, second, and third grade students sitting behind rocks, listening to their teachers in an open-air classroom. The teachers and students had refused to let the earthquake deter classes. The back of a soft drink sign became their blackboard, and rocks their desks.

Aside from regular classroom subjects, the students also absorbed a healthy dose of education in construction techniques: during play periods and after school, students wandered onto the construction site to watch Seabees at work.

When construction started, Ltjg Motodlenich noted Seabees would have to contend with a few unique problems. Four legged problems. It turned out the new school site was directly in the daily migration path of a herd of local cows and goats. The animals were quite content to wander through wet concrete to get from home to their favorite pasture.

When the school finally was completed, a house warming of sorts was held and all Seabees were invited. Ltjg Motodlenich said it wasn't really a case of the Seabees adopting Guatemalans, but of the Guatemalans adopting the Americans.

After the school was completed, six of the 16 Seabees returned



Skills — Guatemalan workers learned new skills helping Seabees rebuild in the wake of Feb. 4 earthquake. Some learned concrete finishing (above), others learned carpentry (above right), and many learned steelworking and welding while putting up the steel houses familiar to Seabees.

Building — With Seabee aid, Guatemalan workers quickly learned to assemble steel buildings for an elementary school. The nearly finished school is at lower right.

home, leaving several builders, steelworkers, electricians, and a hospital corpsman to continue working with the Guatemalans. Plans call for 300 steel-framed huts to be built in Guatemala before December.

Most NMCB-40 personnel remained at the battalion deployment site in Puerto Rico, working on three BEQs and an addition to the Officers' Club. Other Seabees have been involved with other Camp Moscript projects.

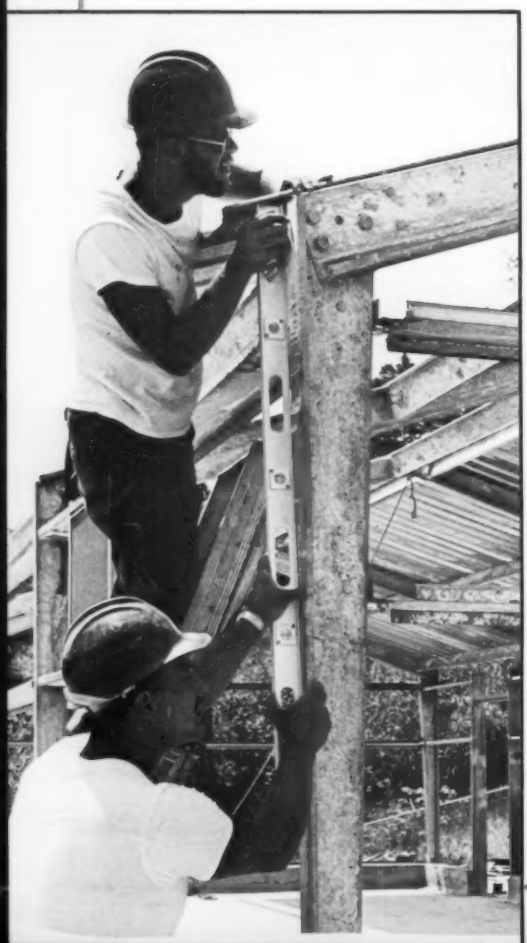
The Battalion returned to homeport at NCBC Port Hueneme in August.

One other NMCB-40 detachment of 35 men was assigned to aid the resident battalion on the Indian Ocean atoll, Diego Garcia.

To build and fight

By CAPT D. L. CONNER, CEC, USN

• Gulfport, Miss.



At a recent "captain's call," a second class builder and a reliable man who should have known the answer, asked, "What is our primary mission in the battalion?"

I was puzzled and stalled a few moments to consider his motive.

Then I replied with the obvious: "Why, construction, of course, and defensive military capability is our secondary mission."

"I just wondered, sir," he answered, "because we seem to place so much emphasis on military training and appearance."

His point was made. A construction man, he worried about distractions from effort toward quality construction work. It reminded me of Seabee battalions fifteen years ago, before Vietnam, and I started to compare differences between then and now.

There are obvious changes, ones noted uniformly throughout the Navy and, American society: the increased intelligence and awareness of young men entering the Seabees; and the Navy's increased sensitivity to drug, alcohol and other social problems, and, of course, hair styles.

But there are also more substantive changes in today's Seabee battalions, changes that might be considered environmental, affecting the conditions under which we carry on our business. Living facilities, for example, are considerably better at most deployment sites. And recreational opportunities for the men have improved significantly. Increased pay levels open wider avenues of opportunity and, consequently, the men are more affluent.

Then, too, we have seen some organizational lines of responsibility and communications within Seabee battalions change. In this respect, of course, we are no different from other Navy units.

Consider, for example, the legion of staff assistants and advisors that now cluster around the commanding officer and executive officer of a battalion: the master chief petty officer of the command, the Marine advisor, the career counselor, the drug and alcohol program advisor, equal opportunity advisors, the collateral duty alcohol counselor, drug exemption representative, the human relations council, the

command retention team, to name a few.

Questions whether or not the new staff assistants are necessary, or why the positions came to be are not the issue. Rather, the point is that each new staff assistant creates new channels of communication and, incidentially, greater overhead effort. They, and their areas of interest, tend to divert attention from our primary mission.

And what of that primary mission, our construction effort? How has that changed over the years, if at all?

Certainly, deployment schedules today are more stable and predictable. In "the old days," it was not uncommon to deploy with a Seabee battalion with only a vague idea of your re-deployment date. The emphasis seemed to be, "You go home when you get the job done!" It went without saying that "the job" was the construction assigned to the battalion.

And if that job was not done in time for the battalion to re-deploy, a delay party was the number one alternative. Not so today. But did that previous philosophy engender greater motivation to complete a project? Very likely.

Hardware resources and support systems available to today's Seabees have also improved immeasurably, particularly the material support system. What sort of material support was available before Vietnam? Frequently whatever the battalion could work out with customers.

Today? Seabee staffs, in both the Atlantic and Pacific, are dedicated to determining requirements, ordering material and monitoring shipment to deployment sites. battalions now have relatively little to do with estimating bills of materials and accepting the consequences if wrong. Today's system is more consistent and, hopefully, accurate than before. But . . . have we lost a sense of responsibility in the battalions and, perhaps, a little of the old Seabee ingenuity?

Look at the military capablity of battalions today; it has improved dramatically in the past fifteen years. Under the influence of Vietnam and the insistent urging of our Marine advisors, we now devote great effort to developing and maintaining military readiness.

The cost has been levied against technical training, probably, but there is no question about the result: battalions are much better prepared today to carry out their secondary mission of defensive military operations.

On the other hand, the technical capability of our Seabees within our primary mission has decreased. Before Vietnam, you could be quite confident of the craftman's skill of most first class petty officers. True, the average first class then had several years more experience than his counterpart today; it took longer to make rate in those days.

Also, the average first class then probably had some good, solid construction projects behind him, perhaps as a civilian. Where have today's petty officers learned their trades? Many in Vietnam, building — in large part — expeditionary and temporary facilities. We have seen a reduction in two vital factors of construction experience: time and quality. Should you be surprised that the skill levels of our petty officers have fallen off?

"But, what of the things that are the same?" you might well ask. "Certainly, not everything has changed!"

No, you're right. Seabees are still "Seabees" and you should be very careful, still, not to call them "Sailors," particularly "Fleet Sailors!" They haven't weakened in their devotion to dogs, liberty and hard work. Seabee battalions, in relation to most other Navy units, have maintained superiority in pride, *esprit de corps* and stick-togetherness.

There is still a close relationship between Seabee battalions in the field and Marine Corps units. And, above all, the Chiefs are still the devoted, capable and reliable Navy men that we remember from fifteen and more years ago. It may very well be their positive influence that has accomplished most to maintain and improve Seabee battalions over the years.

Because, despite the changes — some of them quite significant —

Build or Fight — Has the emphasis in construction battalions shifted too far towards the secondary mission of military readiness? Has the main mission suffered as a result? Probably, says Capt Conner, but battalions are still good.

Seabee battalions are *better* today than they were fifteen years ago. Less experienced and skillful in construction, perhaps, less inclined toward single-minded attention to our primary mission of construction, but better units overall than before Vietnam.

The question is this: can we afford to let this apparent trend, the diversion of effort and time away from our primary mission, continue unchecked? Or should we invest some additional thoughtful consideration into policies and action that will improve our responsive execution of construction projects? This is an election year; let's vote for the latter!

The old way

By CAPT. G. J. McMAHON, USAF
and
LTJG G. R. HENDERSON,
CEC, USNR

Muck — Sigonella Detachment members pour concrete for roof of ordnance magazine.

• Rota, Spain

Mention "Seabee" and the average person conjures up John Wayne, high atop his bulldozer, fighting his way across the sandy beaches of a South Pacific island. Such images of Seabees are still valid for four of the five current deployment sites. However one site, Rota, Spain, home of the European-Atlantic Alert Battalion and associated detachment locations, provides a vastly different environment for both the work and play of the resident battalion.

Naval Mobile Construction Battalion (NMCB) 74 returned recently from Europe having completed assigned projects and taken advantage of the opportunities for recreation and travel. Looking back, a wealth of experience and knowledge was gained during those eight months on the continent.

It was mid-July, 1975, when the main body of NMCB-74 arrived in Europe to assume duties as the European-Atlantic Alert Battalion under Cdr D. B. Leonard. NMCB-74, with 19 officers and 628 enlisted men, began the deployment's work with men spread throughout Europe. Besides Rota, detachments went to Edzell and Holy Loch, Scotland; LaMaddalena, Sardinia; Sigonella, Sicily; Souda Bay, Crete; and Nea Makri, Greece.

One unit of seven men deployed for three months to Haiti in the Carribean to act as a Military Training Team advising a Haitian Construction Brigade. A second team of four men went to Egypt to build radio towers during Operation Nimbus Stream. At all sites there was the usual need to adjust to local customs, food and language. And needless to say, during liberty hours, the men of "74" eagerly pursued this adjustment.

However, on job sites, there was a challenge not normally encountered by deployed Seabee battalions. Rather than the prefab metal building, concrete block, or reinforced concrete construction usually built, the project assigned to NMCB-74 called for European construction materials and techniques.

The reaction of the average Seabee, was that Europeans didn't know what they were doing. It was intuitively obvious to everyone looking at the frail and unreinforced structures that they wouldn't last. But since most of the buildings around had been there longer than there had been a United States, there had to be *something* to what European craftsmen were doing.

And so adapting became the name of the game. Feet and inches gave way to meters and centimeters. Concrete block gave way to double hollow tile and Y-thong lightweight block. Monolithic roof slabs gave way to quick beams, filler blocks and a bit of concrete. American plastering techniques gave way to the unorthodox flinging style of the Italians.

Every day brought new challenges and new things to learn. As proficiency increased, so did productivity, and projects surged ahead toward completion. In total, NMCB-

Bricks — Seabees tried — and found — good European building techniques.

74 completed 29 work projects with 72,600 man-hours of productive labor.

In Rota, NMCB-74's task called for a variety of horizontal and vertical work. Paving crews kept busy constructing an aviation fuel truck parking area, overlaying and sand sealing roads in the ordnance area, and surfacing munitions storage areas within protective berms. A fleet recreation center serving both the Spanish and American fleets was built.

A classroom facility for the family dependents high school and site preparations for an ASTAC van complex were among projects completed by the battalion. A training room building addition in the AIRES program was built from start to finish using local construction techniques. A major effort was also directed at increasing the Seabee camp's habitability with BEQs partitioned into individual cubicles so each man had at least a degree of privacy.

At the detachment sites, a very unusual mix of work was found. In Sigonella, a seemingly endless stream of concrete and rebar was used building munition storage magazines. In Scotland, a storage facility was built in a space excavated under an existing communications center.

Recreational or personnel support facilities received much attention by the unit's detachments. At LaMaddalena, a bowling alley and EM-CPO club received major efforts. In Sigonella, a beach recreation facility was completed and a theater addition begun. In Scotland, a dependent school addition was completed at Edzell and an exchange snack bar built at Holy Loch.

But as was mentioned before, all was not work. Just beyond the gate of any deployment site was Europe with its patchwork of customs, cultures and people. For those who took the opportunity, experiences to last a lifetime were available.

There were the famous "White Cities" of Andalucia, Spain; Seville, Cordoba, and Granada, all beckoning the inquisitive traveler with their wonders. The Alhambra, Alcazar, and centuries-old cathedrals were waiting to unveil their splendor. And what would a visit to Spain have been without attending a bullfight?

For those in Scotland, there was a fairy-tale world of castles and quaint countryside waiting to bewitch those who passed. For those traveling a bit afar, London was but an hour away.

For those assigned off Sardinia or on Sicily, a short trip would bring one to the ruins of what had been the center of the Roman Empire. And a short plane flight opened the vistas of Rome for further fascination.

In Greece and from Crete, Athens held many hours of delightful exploration. The world of the old and the world of the new interlaced in gracious harmony.

Beyond these spots, for those who sought them, were Germany, France and Austria. The Olympics and Oktoberfest were but two of the events to which battalion members could travel.

Europe offered an opportunity to learn new construction techniques, use native materials, practice old skills while providing support for the fleet and maintaining ready status for European contingencies. NMCB-74 in its own "Does More" spirit carried to Europe the proud traditions of the Seabees.

Presentations of the Golden Anchor Award, "Well Done!" from many quarters, and self-satisfaction all added to a feeling of a most successful European deployment. It was definitely a deployment beyond the routine and ordinary and one that should be eagerly anticipated by all Naval Mobile Construction Battalions.

Civic Action — Seabees lent time and equipment to a land-leveling project in Rota, Spain.

NMCB-133 and homeport

By JO3 AL WESTON

• Gulfport, Miss.

Seabees play a unique role in the military and, not surprisingly, undergo continuous training unique in intensity and scope. Most training is accomplished during homeport.

For navy men, homeport is their operating base where their ship drops anchor after a deployment. For Seabees, who only rarely board ships and then only for transportation, homeport is their Seabee base. It is also the time spent there following a land-based deployment.

Seabee deployments, during which the workload is usually so heavy that most training is on-the-job, have been made throughout the world. The normal cycle is eight months of deployment followed by six months of homeport.

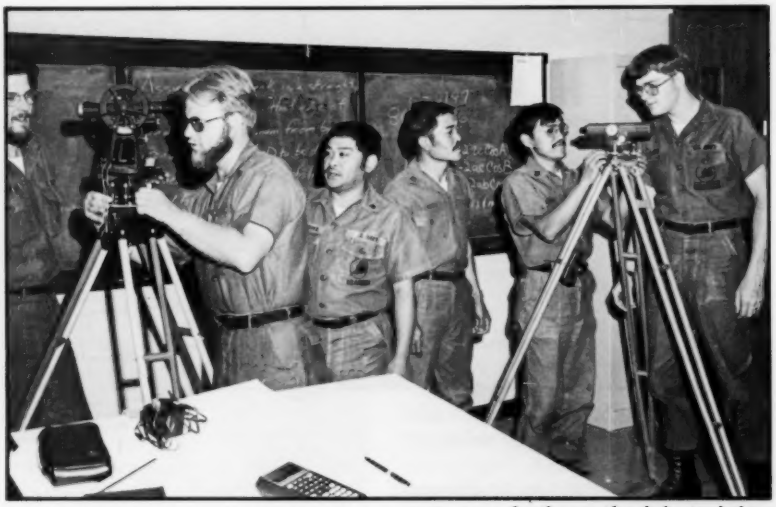
Two Naval Construction Battalion Centers — one at Port Hueneme, Calif., the other at Gulfport, Miss. — serve the Seabees as homeport bases. Four of the eight Seabee battalions, each with some 600 men, use Port Hueneme, and the other four are homeported at Gulfport.

Homeport is when Seabees prepare materially, mentally and emotionally for the next deployment. The success of a homeport period can determine the success of a deployment.

Cdr R. A. Lowery, commanding officer of Naval Mobile Construction Battalion 133, offers this breakdown of the homeport period, "The first 30 days of homeport is a general stand-down to allow leave, rest and recreation. The rest of homeport time is spent training and preparing for the next deployment.

"Homeport training is split into three parts; one concentrating on completion of homeport work projects, another devoted to detailed technical training, and a third devoted to military training — sharpening our defensive combat skills."

During homeport, battalions use many of the formal schools and special Seabee training courses offered at Port Hueneme and Gulfport. Instruction ranges from an 18-week "J" school for Equipment Operators to a one-day course for powder-actuated tools.



On the Level — Homeport time is school time. Seabees learn to use transits.

Military training is compulsory for all in a battalion, including non-Group VIII personnel such as disbursing clerks and yeomen. Usually military training is a three-week course, ending in a battalion-size field exercise.

For some, this basic course is replaced or augmented by training with certain weapons or specialized combat conditions.

Valuable experience is also gained through actual work projects. On-base construction serves as both on-the-job training and base improvement. Battalions also contribute to nearby communities volunteering their time and talents to non-profit groups in need — such as orphans or senior citizens.

Mount-out exercises test a battalion's readiness. With as little as 48 hours' notice, a battalion may be ordered to have the entire unit, all construction and support vehicles, and supplies ready to deploy. Normally, at least one mount-out exercise is held every homeport.

In the latter days of a homeport, inspections ensure all hands are

Helpful — Seabees built shelving for a Gulfport Senior Citizens' Center while in homeport.

ready to deploy. People are told what personal belongings to bring, and about the work and recreational aspects of the deployment.

Finally, homeports offer ample leisure pursuits. Most men take leave upon returning from deployment or during the month preceding the next deployment.

How well does this mixture of classroom lectures, OJT, inspections and recreation prepare men for the rigors of deployment? The experiences of five young men in NMCB-133 illustrate the importance of homeport. NMCB-133 recently ended a six-month homeport period and left for Diego Garcia.

Steelworker Third Class Johnny D. Leffler, 20, spent nearly 50 per cent of his homeport in training. SW3 Leffler had four weeks of Maintenance Welding School, one week of Disaster Recovery Training, three weeks of military training and four weeks of Certification Welding School.

According to Leffler, he was granted all the schools he requested. "I learned about the subjects I needed to know — everything from soldering to gas welding to arc welding."

Engineering Aid Constructionman Steve Melanson, also 20, spent even more time training than Leffler — 15 weeks. Melanson had a five-week Surveying-2 course, two weeks of Crew-Served Weapons (mortars) training, three weeks of Soils School, two weeks of Concrete School and two weeks of Asphalt School. Melanson also spent one week qualifying with the M-16 rifle.

"After taking all those schools I could build a highway if I had the people," Melanson declared. He marveled, "And here I am, right out of high school."

Builder Third Class Thomas L. Block, 21, attended a one-week Drawing and Specifications class, a two-week Planning and Estimating course, a one-week Material Liasion Office school and a three-day Equal Opportunity seminar. He received five weeks military training — the usual three-week course and two weeks of cold weather combat training at Fort Drum, New York, in February.

During the Diego Garcia deployment, Block will be ordering materials for jobs. He says the training he received will help tremendously with his job.

Twenty-eight year old Construction Mechanic Third Class Hollis Avery had six weeks training during his homeport. He spent three weeks in Diesel Tune-up courses, two weeks in Cost Control classes, and one week in Communications school. He also had Crew-Served Weapons training and qualified with the M-16 rifle.

Avery said, "During the Diesel Tune-up courses, we went through every type engine we use, tore them down and tuned them up." As for the Cost Control course he says, "I never had anything to do with Cost Control before taking the course." He says after completing the course he would be able to handle the paperwork challenges involved.

Construction Electrician Third Class Vincent Reynolds, 24, took two courses in Planning and Estimating, Drawing and Specifications, and Motor Controllers and Electrical Theory. He also qualified with the M-16 rifle and attended a three-day Drug and Alcohol Education seminar.

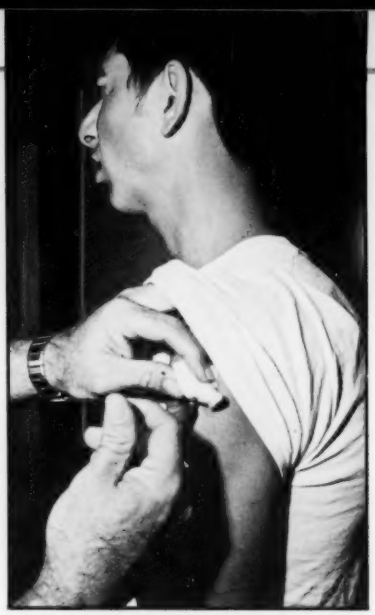
Reynolds praised his training, and had special praise for the Drug and Alcohol seminar, saying, "It taught awareness of people in general, not just those with drug and alcohol problems."

All five agreed the training was adequate preparation for deployment. Each also expressed the sentiment that homeport provided a much-needed chance to unwind.

SW3 Leffler enjoys his off time in the Gulfport area with his girl friend. EACN Melanson involves himself in sports ("whatever's in season"). BU3 Block makes furniture in the base hobby shop and fishes in the Gulf. CM3 Avery spends free time with his wife and son and works as an auxiliary policeman for the nearby city of Biloxi.

CE3 Reynolds, a native Louisianan, visits his parents often. "I also watch basketball games at the (New Orleans) Superdome, go to Mardis Gras, bowl, and have a general good time."

Men will take memories of homeport's good times with them when they deploy. If the homeport has been successful, they will also take memories of the training they've received.



Zap — Seabees also get needed medical attention in homeport (above) and brush up on military skills (below).

Naval Construction Training Centers

By JO3 SCOTT D. SMITH

Martians? — No, just Seabees training in decontamination techniques at Port Hueneme.

• Port Hueneme, Calif.

Any time day or night, a major natural or manmade disaster may strike. Since little can be done to prevent a disaster, the need exists to react to one in such a way that a military installation or civilian community can recover.

This is what Disaster Recovery Training (DRT) at Naval Construction Training Center (NCTC) Port Hueneme, Calif., is all about. The training received by personnel attending the Disaster Recovery Training course will enable them to react to any disaster.

The Port Hueneme instructor staff has 13 Group VIII E-6s and E-7s, who have an average of 15 weeks concentrated training in NBC Warfare Defense and Instructor Training. This is in addition to the many hours of research and self improvement study conducted by this highly motivated crew.

Disaster Recovery Training provides instruction in every aspect of emergency treatment of injured personnel, restoring and maintaining essential operations of military and civilian activities and preventive measures against certain disasters. Specifically, DRT consists of three phases. Biological and Chemical Warfare, Nuclear Warfare and Rescue Recovery.

Biological and Chemical Warfare

In this training phase, personnel are trained to recognize chemical agents used in warfare.

They learn chemical warfare includes any liquid, solid or gas which produces casualty, harassing, screening or incendiary effects. They also learn to recognize the symptoms agents produce. For example, blister agents will first cause eye irritation followed by skin blistering, open sores and itching. They are taught how to treat the symptoms.

When symptoms are noticed it is often too late for preventive measures. Thus, they receive training on how chemical warfare attacks may be detected without special equipment, relying on one or more of the following means: method of release, appearance, odor and sensation.

For example, alert eyes may see suspicious gas vapors, airplane sprays, smoke screens, liquid agents in puddles and on vegetation. Sharp ears may note certain shell explosions sound different, or keen noses may detect the characteristic odor of those gases that have odors.

Although man's senses may detect war gases, they cannot be relied upon to provide warning of a chemical attack. Special gas detection devices have been developed for this and training is offered in use of this equipment.

Since these devices only warn, training in the use of protection equipment is also stressed. This includes protective masks, clothing, and decontamination kits.

Biological warfare is use of living organisms or their toxic products to cause death, disability or damage to man, his domestic animals or crops.

Training follows the same lines as chemical warfare: recognition of symptoms, use of warning equipment and protection against the agents.

It has been asserted that new, horrible diseases will be unleashed if biological warfare occurs. This claim is obviously not true as man can work only with existing micro-organisms.

Nuclear Warfare

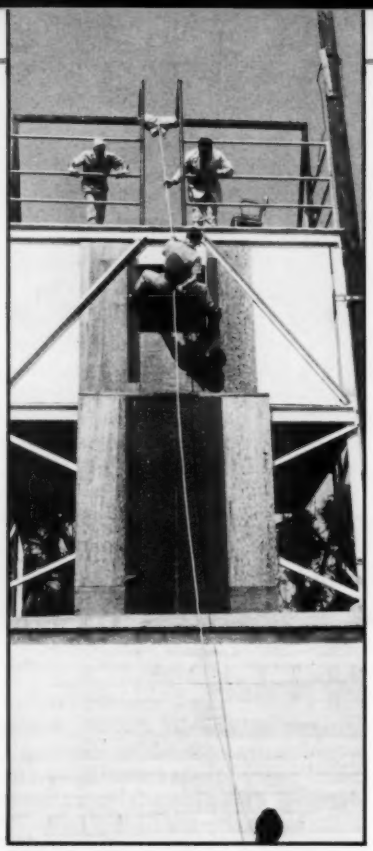
In a nuclear accident involving a nuclear war reserve weapon, nuclear material or nuclear reactor, men attending Disaster Recovery Training are schooled in the use of instruments which can determine quickly and with reasonable accuracy the type and extent of each radiation hazard.

All radiac instruments are based on certain principles involving the effects of radiation upon various materials. These are the scintillation principle, ionization, photographic effect and radiophotoluminescence.

Scintillation refers to the property certain materials have of emitting flashes of light or — scintillations — when exposed to radiation. These flashes are in direct proportion to the amount of radiation absorbed by the crystals. These scintillations then act on a photo sensitive gauge calibrated for radiation measurements.

Ionization can be pictured as the stripping away from the normal atom of one or more of its electrons.

The basic principle of this apparatus involves the fundamental law that unlike charges attract each other and like charges repel. Ionization radiation detection devices simply measure the flow of electricity. But, because of the relation between this flow and the



Alone and Double — Getting down from high places is an art — one practiced both individually (above) and in pairs (below) at NCTCs.

radiation that produces it, we can interpret measurements in terms of radiation.

The photographic effect is based on the fact that by using films of different sensitivities and shielding them from other exposures, useful indicators of accumulated radiation dosages can be obtained.

The radiophotoluminescence principle involves a specially prepared silver-coated phosphate glass that when subjected to radiation becomes luminescent. The degree of luminescence is proportional to the amount of radiation the glass receives.

Since prevention of atomic attack or accident is often impossible, proper training to detect dangerous areas of radiation is essential to recovery from such a disaster.

Rescue Recovery

This last area of Disaster Recovery Training is the one most commonly used by peace-time units. The goal of rescue recovery is to save lives. This includes, but is not limited to, freeing survivors trapped in damaged buildings or assisting injured people in uncontrollable fire areas to reach safe places.

Certain tools and equipment are essential for effective rescue squad operation. Trainees learn what equipment they need for certain situations and proper use of that equipment.

Different types of equipment include block and tackle, ladders, ropes, breathing apparatus and cutting tools. After they become familiar with their equipment they next move into rescue techniques.

A rescue technique is one of the steps necessary to carry out a rescue operation. All rescue operations normally require the use of several techniques. Selection of the most effective techniques under varying conditions often means the difference between survival or death of a casualty.

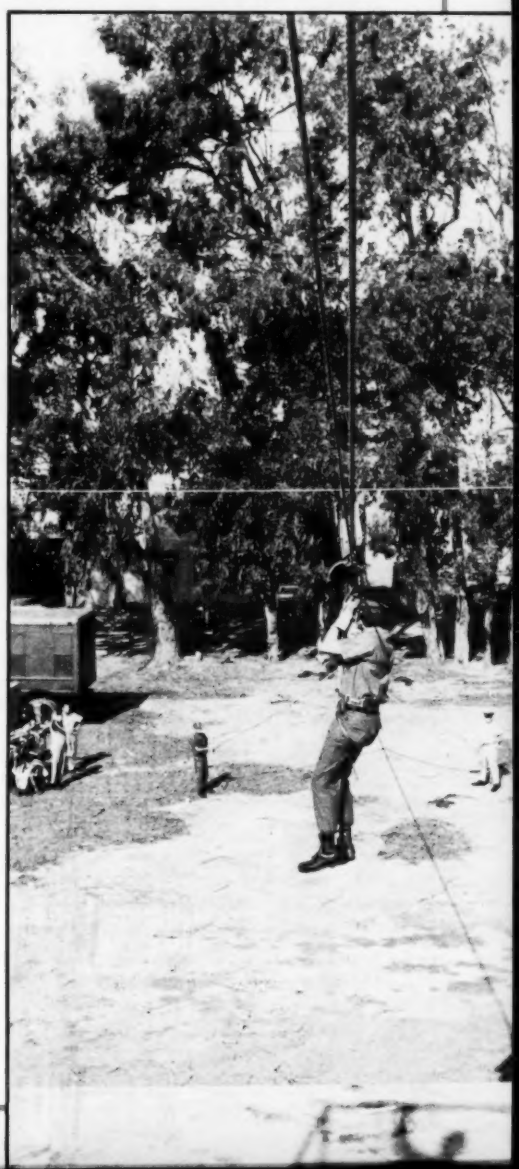
Some major techniques and elements are lashing, holdfasts and slings, essential to rigging operations, breaching walls, trenching, debris tunneling and ventilation — used in rescue from basements; and raising and supporting structural elements useful in a variety of rescue operations.

Proper care of casualties during and after rescue is as important as locating and freeing them. Casualty handling includes emergency first aid, removal and disposition of casualties. Since rescue operations are conducted under a variety of adverse conditions, knowledge of these subjects must be combined with common sense and good judgment.

Although Disaster Recovery Training was developed specifically for training Seabees in their new assignment, other military, government and civil service personnel have benefited tremendously from the program.

Disaster Recovery Training effectively instills the ability to react to a given event so as to diminish the loss of lives and property.

Rescue — Lowering injured from high places is another art also practiced at NCTCs.



Bees a'sea

By LCDR W. F. CLARKE, CEC, USN

• Coronado, Calif.

Amphibious Construction Battalion One, commonly known as PHIBCB-1, was formed in 1943 as part of the Amphibious Forces of the Pacific Fleet. As part of the Naval Construction Force, PHIBCB-1 is commanded by a Civil Engineer Corps officer and about one-third of the battalion's men are Group VIIIs.

PHIBCB-1 supports amphibious forces two ways: it provides limited construction on established beach heads and causeway piers that form a "bridge" for amphibious ships to the beach. PHIBCB-1 also deploys amphibious assault bulk fuel systems.

This second role involving causeways and the fueling systems is the focus of much of the battalion's effort.

Recently, PHIBCB-1 designed a side-loading warping tug to improve the Amphibious Forces ability to insert a causeway pier in forward deployed areas. Inserting a causeway pier involves using a standard warping tug.

The causeway pier is brought to the beach side-loaded aboard LSTs. Once in the beach area, causeway sections are launched from the LST and "married" to form a pier usually of eight to twelve sections.

Under present methods, the standard warping tug used to marry the sections and insert the pier must be brought to the area in a shipboard wet well, usually an LSD. The other option is to dismantle the living compartment, winch and propulsion units on the pontoon hull and side-load the hull as a section.

This requires a great deal of dismantling and becomes impractical in a forward area.

As wet well space is normally at a premium in the Pacific Fleet, PHIBCB-1 designed and built in-house a side-loading warping tug (SLWT). The SLWT has only the basics needed to perform tasks involving the causeway pier and buoyant bulk fuel system.

Bridge — One of the most difficult gaps to cross with heavy military equipment is that between ship and shore. A causeway pier allows amphibious forces to go ashore virtually anywhere. In heavy surf, a self-elevating pier (below) is of great value.

To ease side-loading aboard an LST, the "A" frame on the bow can be lowered to deck level, the winch positioned to one side on a track arrangement, and one propulsion unit removed.

Once the SLWT is launched, the winch is moved to the centerline, the "A" frame raised, and the second propulsion unit loaded aboard. This can be done in about three hours, at which time the SLWT is operational.

The problem of lube oil and fuel in the winch and the remaining propulsion unit in the side-loaded position was solved by devising a hand pump arrangement and transferring POL from the units to holding tanks in the SLWT hull.

Using the SLWT as the platform for the self-contained hose reel, 5000 feet of hose can be deployed and retrieved at the beach. By using the SLWT to perform both causeway and fueling missions on deployment, other amphibious craft can be kept free for their primary purpose of unloading troops and equipment.

PHIBCB-1 is also charged with support of R & D efforts of testing

improvements for amphibious hardware. One recent involvement was elevating a nine-section causeway pier to form an above water system to off-load lighterage loaded with containerized cargo.

This was the first time a pier of this sort using equipment inherent to the PHIBCBs had been elevated and cargo actually off-loaded to the beach. In the near future all cargo delivered to the operating area may be in containers or LASH barges. The test drew considerable interest from the operating forces.

Regarding construction, in addition to providing camp support and limited construction on the beach, PHIBCB-1 keeps its Seabees ready through training projects. Not only do these projects keep the PHIBCBs at key operational level, but also are worthwhile to the Navy. One recent project was the demolition of several abandoned and deteriorating World War II piers at Treasure Island, San Francisco and Naval Supply Center, Oakland, California.

Warping Tug — This standard warping tug is invaluable in moving cargo from ship to shore in amphibious operations.

Balloons and Bees

By CDR J. L. CLEARWATER, CEC, USN

• Little Creek, Va.

Amphibious Construction Battalion Two is really not the usual construction battalion at all! Part of Naval Beach Group Two, it has more boats than builders and more fleet sailors than Group VIIIs. PHIBCB-2's business is supporting the amphibious force by getting people, material and equipment from sea to shore.

Recently, PHIBCB-2 has been "doing its thing" in a variety of places and in some strange ways. Would you believe moving containers over the beach by balloon, or ferrying Army engineers from ship to shore in Guatemala, or building a fishing reef with junk causeways?

These are all recent accomplishments of PHIBCB-2, all in addition to its normal support of Amphibious Ready Groups.

Amphibious Ready Groups

PHIBCB-2 is now supporting Amphibious Ready Groups with causeway/buoyant fuel/salvage teams. PHIBCB-2 has four such teams with two more recently authorized. Two of these teams are continuously on line with the Mediterranean and Atlantic Ready Groups.

For the "Mad team," this means a six-month deployment on amphibious ships carrying all their equipment "on their backs." Basically, each team consists of one junior officer (CEC, Line or Warrant) and 32 enlisted personnel from deck and Group VIII rates.

Each team can hoist, launch, marry and emplace a four-section causeway pier or a 5000-ft. Amphibious Buoyant Fuel System. Team causeways are also used for barge ferry operations. Other PHIBCB-2 personnel support the beachmasters in beach salvage operations.

Guatemala

In March, PHIBCB-2 supported emergency relief operations after the Guatemala earthquake. On one weekend, two ships were rigged for causeway operations although only one was eventually needed.

Army engineers and their massive road building equipment were loaded in Morehead City, N.C., and unloaded in Guatemala. The debarking took only 16 hours despite the unusual configuration of the Army gear.

Balloon Operations

Elements of PHIBCB-2 spent a month testing a heavy lift, tethered balloon system jury-rigged for handling cargo containers, both ship-to-shore and ship-to-lighter. These tests, if nothing else, have removed the "laugh factor" from balloon transport systems.

Seeing an 8' x 8' x 20' container moving from ship to shore over the surf, beach and dune line at 1,500 feet per minute is enough to stimulate anyone's interest — especially when the balloon can lift more than the largest helos.

PHIBCB-2's participation in the Balloon Transport System Test support was extensive and included laying anchors for positioning ships and craft, providing winch-equipped warping tugs used in flying and controlling the balloon, providing causeway platforms used as simulated ships and lighters, and camp and support equipment.

Who knows, Seabees may be authorized wings, yet!

Aid — Cargo bound for earthquake-shattered Guatemala sits in the hold of a transport ship. PHIBCB-2 moved cargo from ship to shore.

Near Disaster — **Left,** Balloons are being tried as a means of getting cargo containers from ship to shore. This cargo-carrier nearly drifted off when wind uprooted its anchors. **Above,** a PHIBCB-2 team lashes a warping tug to the side of a cargo ship. Tugs cross oceans aboard such ships. **Below,** anchors are inspected before storage aboard ship.

Rota Causeway

Try building a permanent thousand-foot-plus floating bridge with nine men and one boat in ten days! PHIBCB-2 did in Rota, Spain, using 13 excess causeways. (Of course, they had a little help from NMCB-4 and the Naval Station Rota.) Hopefully, the completed work will enhance support for fleet ballistic missile submarines operating from Rota.

Artificial Reef

PHIBCB-2 has even been improving the local fishery. Using eight junk causeways, which were cluttering the landscape and posed a virtual horror for disposal officers, PHIBCB-2 sank the causeways for the artificial reef located eastward of the Chesapeake Light near Norfolk.

The causeways were perforated and sideloaded onto LSTs. As the LSTs sailed over the artificial reef area, PHIBCB-2 personnel chopped the lashings and the causeway sections sank and formed havens for fish and aquatic plants.

Joint Lots

Participation in the JOINT LOTS (a joint military services program dealing with Logistics Over The Shore) arena has been a unique experience for PHIBCB-2.

Dealing with deployment of unique and heavy lift cargo requirements further generated by the need to handle container and barge ships in amphibious operations, JOINT LOTS has tested the ingenuity of logisticians to the limit.

Typical of the problems involved is unloading a 50-ton carrier for a 250-ton crane from a ship onto causeway sections or lighterage for transfer to the beach.

Solid Shield 76

PHIBCB-2 sent its largest detachment in many years to Exercise Solid Shield 76 in May. Involving almost 100 men, seven boats, 12 causeway sections, buoyant fuel system and many pieces of support equipment, this detachment formed part of a 50,000 man Joint Services Force Exercise spread over several states.

Centered at Onslow Beach, N.C., exercise objectives for PHIBCB-2 involved joint amphibious assault operations with emphasis on logistic support of a brigade sized force.

The men of PHIBCB-2, especially CEC officers and Group VIII Seabees, find life with the Beach Group and the Amphibious Force a new and interesting challenge.

Reserve Seabees 'Attack' Fort Mifflin

• Philadelphia, Pa.

Fort Mifflin, one of Pennsylvania's oldest and most historic Revolutionary War strongholds, has been restored and re-roofed in honor of the Nation's Bicentennial.

Started by the British in 1772, then completed and defended by the American "rebels," Old Fort Mifflin, located on the Delaware River just south of Philadelphia, was the scene of one of the longest and bloodiest sieges of the Revolutionary War (1777). The battle is credited with having stalled the British offensive for several months, allowing Washington's forces to regroup and train at Valley Forge.

The restoration was performed through the efforts of the Shackamaxon Society, a historic group based in Philadelphia. According to Robert I. Alotta, president of the society, obtaining financial support and volunteers for the restoration was not easy.

However, the U.S. Naval Reserve Mobile Construction Battalion 21 (Seabees), Philadelphia detachment 01 and Certain-teed Products Corporation of Valley Forge, Pa. joined with the society by donating materials, labor and technical advice.

Alotta, who calls himself a scrounger, asked the Army to pick up building materials from local area building materials distributors, and asked the "Seabees" to perform miscellaneous jobs during their weekend duties as a public service project.

One of the noteworthy aspects of the restoration activities was the participation of the Certain-teed company, according to Alotta. A manufacturer of building products, the firm has a National Building Restoration Program through which they select several worthy historic sites each year and donate the materials required for re-roofing.

Lt. Joseph J. Del Ciotta Jr., of Lansdale, Pa., Officer-in-Charge of the reserve Seabee detachment and an architect in civilian life, said, "The men really enjoy a public service project like this. Usually, we spend most of our time working on military projects at the Philadelphia Naval Base. The Fort Mifflin project is a refreshing diversion and it enables us to contribute to the nation's Bicentennial celebration."

Certain-teed, in reference to their Building Restoration Program, has the same sentiments. "We are delighted to be of help to historic properties as part of our Bicentennial efforts," notes Joseph G. LaCroix, vice president of the company's Shelter Materials Group. "And because we believe that historic preservation is vitally important, we will continue this program beyond 1976 for other historic sites across the country."

SEABEES TOP OUT — One structure of Fort Mifflin, which dates from 1814, sees its topside completed with new roofing by Reserve Seabees cooperating with the Shackamaxon Society and Certain-teed Products Corp.

GO FLY A KITE — Ben Franklin, reincarnated, clambers up the roof of the Seabee-renovated officers' quarters of Fort Mifflin, apparently to test his electrical theories.

The Bicentennial Class

Naval School, Civil Engineer Corps Officers.
Graduated 2 July 1976
Port Hueneme, California

Front Row
Left to Right

Ens DENNIS A. FEWELL, BS (Arch. Engr.) Univ. of Colorado, assigned MCAS Beaufort, S.C.; Ens DENNIS M. FRENCH, BSCE New Mexico State Univ., assigned NAVREGMEDCTR Guam; Ens JAMES G. TRAVES, BSE Cal State-Long Beach, assigned PWC San Francisco Bay; Ltjg JOSEPH W. TAYLOR, MSCE Univ. of Texas, assigned MCAS Iwakuni, Japan; Lt MICHAEL J. PERRY, BSCE Univ. of Connecticut, assigned USMC Base Twentynine Palms, Calif.; Ens JON C. WYMAN, BSCE Worcester Polytechnic Inst., assigned NAVWPNSUPPCEN Crane, Ind.; Ens KENNETH A. VESELY, BSCE Southern Illinois Univ., assigned NMCB-74; Ens WILLIAM J. PAINE, BA (Bldg. Const.) Univ. of Florida, assigned NAS Glenview, Ill., and Ens WILLIAM A. MORRISON, MS (Nuc. Engr.) Kansas State Univ., assigned CBC Gulfport.

Middle Row
Left to Right

Ens JEAN A. BAND*, B of Arch., Univ. of Virginia, assigned OICC Guam; Ens. FRANCIS R. STEARNS, BS (Engr.) Univ. of South Carolina, assigned NAVCOMMSTA Honolulu; Ltjg ROBERT D. LLOYD, MS (Arch.) California State Polytechnic, assigned AROICC NAVSHIPYD Mare Island; Ens. CHARLES F. WINSOR, BSCE San Diego State Univ., assigned NAS Moffett Field; Ltjg JAMES M. McGARRAH, BSME USNA, assigned NAVSUPPACT Mare Island; Ens. LARRY E. BOCHET**, BSCE, Columbia Univ., assigned NAS Kingsville, Tex.; Ens WALTER D. DEKIN, BS (Civil/Sanitary) Syracuse Univ., assigned NAVWEPSTA Yorktown, Va.; Ltjg EUGENE P. HAYES*, BSCE State Univ of New York, assigned NAS Meridian, Miss.; and CWO2 SCOTT F. LOWE, assigned NAVSTA Midway Island.

Back Row

Ens JOHN M. SHREWSBURY, BSAE West Virginia Univ., assigned NAS Point Mugu, Calif.

*Graduated With Distinction
**Graduated With Distinction and Outstanding Graduate

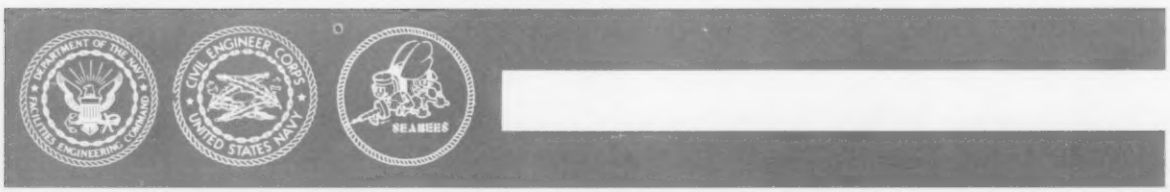
An invitation to young graduate engineers to join the young professionals of the U.S. Navy

CIVIL ENGINEER CORPS

Construction and maintenance of the Navy's shore and support installations is just one of the responsibilities of the engineer managers of the Navy's Civil Engineer Corps. And qualification is not limited to the civil engineering discipline, as the Corps requires graduate engineers of mechanical, chemical, electrical, industrial and construction disciplines and architecture too! As a commissioned officer of the U.S. Navy the young engineer is offered greater opportunity to develop quickly a professional career with the added potentialities of an exciting overseas assignment, professional registration and graduate studies! The young officer may be assigned to construction contract administration, public works management or with a Naval Mobile Construction Battalion, the historic Seabees, plus many individual and unique positions.

Engineering students and counselors are invited to explore the multifaceted world of the Navy's Civil Engineer Corps by contacting their local Navy Recruiter for specific details. An informal visit with a Civil Engineer Corps officer to discuss the personal and professional benefits of a Navy career can be arranged by the same Navy recruiter or by calling or writing the Naval Facilities Engineering Command, (ATTN Code 09MA1), 200 Stovall Street, Alexandria, Va., 22332 Telephone: (202) 695-3635.

Call toll-free 800-841-8000 now if you desire instant information from the Naval Recruiting Command. If you're a good student, and want to be a better engineer, the chances are you'll do best by investigating the Civil Engineer Corps of the U.S. Navy.



☆ U.S. GOVERNMENT PRINTING OFFICE 1976 683-604/0517